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The Effects of Creative Drama-Based Intervention
for Children with Deficits in Social Perception

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The Effects of Creative Drama-Based Intervention for Children with Deficits in Social Perception

by

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Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

December, 2004

Dedication

This is dedicated to my parents

Diana Mercedes Martinez Guli
and
Salvatore Dominick Guli

With eloquent example, you taught me
that in our lives it’s not speed, or skill, that matters.

It’s determination.

Acknowledgements

I would like to express great thanks to my supervisor, Dr. Margaret Semrud-Clikeman, for all of her encouragement, teaching and support over the last seven years. Peg, I will miss learning from you, laughing with you and cornering you in your office at unexpected moments with questions (i.e., where is the picture of my brain?) I would also like to express my thanks to my committee members, Dr. Cindy Carlson, Dr. Gary Borich, Dr. Sharon Grady and Dr. Frank Richardson, for contributing their time, expertise and support to this process.

I also thank my fellow graduate students, particularly Jenifer Walkoviak, Alison Wilkinson and Kimberly Glass, for their major contributions to this project. Great thanks also to all the group leaders and observers who helped run the program and collect data, including Aimee Gerrard, Mike Graves, Alexandra Kutz, Cress Suess, Elizabeth Portman, Reshma Naidoo, Sarah Schloeneban and Bill Jarrold. Thanks also to Teresa, for her endless help and patience in scheduling rooms necessary for the project and helping dealing with crowd control in the School Psychology suite.

Thanks, Mom and Dad, for providing the encouragement and financial support to get this degree completed. Special thanks also to my honey Brit, who lived with not only me but the dissertation through our many growing periods. Brit, you have been a continually loving and supportive influence throughout this process (even when I made you turn off the video games!) I would also like to thank Delane, Jim and Ken, my internship supervisors at Salesmanship Club Youth and Family Centers, for giving me the impetus to get this project done. My experience at Salesmanship Club inspired me to get out into the field again with children as soon as possible.

Finally, I thank the parents and children who volunteered many afternoons and precious Saturdays to participate in this project. Without question, you are the reason for increased knowledge and progress in this field. I will long remember your faith in the project, your tenacity in the face of difficulty, and your unique gifts.

The Effects of Creative Drama-Based Intervention for Children with Deficits in Social Perception

Publication No. _____

Laura Ann Guli, Ph.D.
The University of Texas at Austin, 2004

Supervisor: Margaret Semrud-Clikeman

This study explored the effects of the Social Competence Intervention Program, a unique intervention based on creative drama. Unlike traditional social skills interventions, this program specifically addressed the needs of children with social perception deficits. The sample included children with diagnoses of Nonverbal Learning Disabilities (NVLD), Asperger Syndrome, high functioning autism (HFA) and Attention Deficit Hyperactivity Disorder (ADHD). Participants were compared to non-participants on various measures of social perception and social competence, including the Diagnostic Analysis of Nonverbal Accuracy (DANVA2) child faces and paralanguage subtests, the BASC parent questionnaire withdrawal and social skills scales, and behavioral observations. Qualitative data were also collected through child interview, parent interview and group leader journals. Quantitative results approached significance at the $p < .05$ level for DANVA2 child faces subtest and behavioral observations. Post-intervention, the treatment group was observed to have significantly less solitary behaviors and significantly more positive interactions than the clinical control group. According to parent and child participant interviews, 75% of participants reported one or more positive effect in social competence as a result of participation. In addition, results suggested that the intervention was less successful for children who had a diagnosis of ADHD alone. Parent and participant suggestions for improvement include increased parent participation, more structured behavioral management and lengthening the program. Recommendations for future research include the replication

of this or similar studies with greater sample size and/or the use of single-participant design, the collection of follow-up data and additional exploration into the nature of social perception deficits for these populations. Implications for school psychology theory, research and practice are discussed.

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Chapter 1: INTRODUCTION

"Sometimes it is too hard to concentrate on listening and looking at the same time. People are hard enough to understand (since) their words are so very cryptic, but when their faces are moving around, their eyebrows rising and falling and their eyes getting wider then squinting, I cannot fathom all that out in one go, so to be honest I don't even try."

--Luke Jackson, age 13
Freaks, Geeks & Asperger Syndrome:
A User Guide to Adolescence (2002)

While much attention is paid to the cognitive and academic difficulties experienced by children with developmental and learning disabilities, less focus is placed on their social difficulties. Yet, many children with these disabilities remain isolated, teased, and confused about how to interact successfully with their peers. Often, they may try to fit in, fail, and not know why. Not all children have social difficulties for the same reasons. For some children, environmental factors, past failures, anxiety, or depression may play a role. For others, serious conduct issues prevent them from succeeding socially. However, recent research suggests that yet another subset of children may have social competence problems because they have difficulty accurately perceiving and integrating the nonverbal cues in social interaction, such as facial expression, voice intonation, and nonverbal gestures.

Children with nonverbal learning disabilities (NVLD) and autistic spectrum disorders such as Asperger's Syndrome have difficulty perceiving, integrating and expressing information that is presented nonverbally, such as visual-spatial stimuli or nonverbal aspects of language (Klin, Volkmar & Sparrow, 2000; Rourke, 1989; Semrud-Clikeman & Hynd, 1990). For example, they may have trouble interpreting a very subtle look of fear, or integrating a happy expression with an angry tone of voice.

Many children with these disorders also suffer from Attention Deficit Hyperactivity Disorder (ADHD), which makes social situations even more challenging for them. Due to behavioral disinhibition, children with ADHD may not inhibit their responses long enough to fully process and accurately interpret the perceptual information. As a result, children with ADHD may be likely to respond to general environmental cues and establish an overall mindset, which may or may not be appropriate to the situation (Barkley, 1998). For example, they may over-interpret the actions of others as joking, or as hostile. Across all diagnostic groups, such deficits can result in severe loneliness, inappropriate behavior, and an inability to build or maintain satisfactory relationships.

Not surprisingly, research indicates that children with these types of disabilities frequently experience social rejection, isolation and negative peer and family interactions (Little, 1993). According to a calculation by Gresham, MacMillan, Bocian and Ward (1997), 80% of a sample of third grade children at risk for behavior disorders do not have a single friend in the classroom. In a recent survey (Little, 2002) a large sample of mothers of children and adolescents with Asperger's Syndrome and nonverbal learning disorders reported a peer victimization prevalence rate of 94%. Three quarters of mothers surveyed reported that their children had been hit by peers or siblings in the last year or were emotionally bullied. Ten percent of the children were involved in gang attacks. A third of the children were not invited to a single birthday party; many were eating alone at lunch and picked last for teams. In fact, children with both Asperger's Syndrome and Nonverbal Learning Disabilities have been described as "perfect victims" because of their profound social difficulties (Klin et al., 2000, p. 6). Nonverbal processing ability has been related to children's feelings of depression and level of competence (Nowicki & Carton, 1997). Over time, these kinds of social difficulties have been shown to predispose children with nonverbal learning disabilities to depression and suicide risk (Fletcher, 1989; Rourke, Young & Leenaars, 1989).

Clearly, there is an urgent need for programs that create long-term improvements in children's social competence. However, although many social skills

interventions for children exist, few have shown generalization or maintenance of effects (Teeter & Semrud-Clikeman, 1997). This finding may be partially because the child's actual social environment is rarely included in the intervention itself. Also, most social skills interventions are general and do not target specific types of needs (Gresham, 1997). Finally, many interventions assume that children can accurately perceive and integrate nonverbal information, focusing instead on training them in appropriate social responses.

The goal of this dissertation is to examine the effects of a unique intervention developed to address the needs of children and adolescents with nonverbal learning disabilities and autistic spectrum disorders. Unlike traditional social skills programs, the Social Competence Intervention Program adapts creative drama activities to address perceptual and integrative deficits. The intervention, which blends current research from neuropsychology and the field of creative drama, is an innovative, multi-sensory approach to addressing the needs of certain children who are unsuccessful in their attempts to fit into their social world. Combined with therapeutic problem solving and discussion in a group setting, the intervention's structure of activities has the potential to be a powerful tool for change in the lives of children with social disabilities. In addition, it is hoped that this study was a valuable contribution to evidence based intervention research as well as help foster collaboration between the disciplines of psychology and creative drama.

Chapter 2: LITERATURE REVIEW

This literature review is organized into four general sections. First, it will describe social competence and current models of social perception. Second, populations with deficits in social perception were discussed within the context of current neurodevelopmental theory, including autism spectrum disorders and nonverbal learning disabilities. Next, the current state of social skills interventions and their efficacy was reviewed. Finally, the theory and efficacy of creative drama as a viable form of intervention for children with social perception deficits be presented.

Social Competence and Social Perception

Overview

What does it mean to be "socially competent?" Social competence has been defined in a variety of ways, including the ability to function effectively in interpersonal situations (Custrini & Feldman, 1989), the use of environmental and personal resources to achieve good developmental outcome (Waters & Sroufe, 1983), and an evaluative term referring to judgments that a person has performed competently on a social task (Gresham, 1992; Gresham, 1997; Kavale & Forness, 1996; Waters & Sroufe, 1983). Dodge (1986) believes that social competence consists of three components: perceiving, decoding and interpreting social cues, selecting a response, and appropriately enacting the response. Vaughn and Hogan (1990) identify four components as features of social competence: positive relations with others, accurate and age-appropriate social cognition, absence of maladaptive behaviors, and effective social behaviors. Although these definitions differ, social competence is viewed as a global construct that encompasses social skills--the specific behaviors exhibited in specific situations.

Research shows that social perception is a key element in social and personal competence. Plainly stated, it is only by accurately understanding others' and communicating one's own emotional and social cues that one can be successful in

social interaction. Zabel (1979) states that children who are better interpreters of the emotional responses of others would be expected to communicate more effectively and acceptably with others. Specifically, social perception of nonverbal cues has been associated with general social competence in preschoolers (Philippot & Feldman, 1990) older children (Custrini & Feldman, 1989; Morrison & Bellack, 1981; Stokes, Jones, Czogalik & Rohleder, 1993) and adults (Christensen, Farina & Boudreau, 1980; Hall, Rosenthal, Archer, DiMatteo & Rogers, 1978; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979). Furthermore, nonverbal processing of voices and faces has been found to be related to depression and feelings of competence in children (Nowicki & Carton, 1997).

Voeller's Model of Social Competence Deficits

Voeller (1994) identified specific subtypes of social competence deficits in a new way, focusing on the manifestation of the deficit rather than looking at a specific learning disability or syndrome. This model allows for targeting of the specific difficulty leading to the social competence deficits. Voeller (1994) identified three subtypes of children with social competence deficits. Type 1 tended to be aggressive and manipulative, while Type 2 was described as withdrawn, passive and lacking in aggression. Their inability to read social cues resulted in an inability to perceive and interpret others' feelings. Children in Type 3, although aware of others' feelings, were unable to regulate their own behaviors, appearing noisy, unintentionally disruptive and disorganized.

These subtypes correspond with diagnostic categories. The behaviors observed in Type 1 match the pattern of behaviors seen in oppositional and conduct disorders, while Type 2 corresponds with those deficits seen in autistic spectrum disorders (PDD) and nonverbal learning disabilities. Type 3 deficits most closely resemble the difficulties in executive functioning experienced by children with Attention Deficit Hyperactivity Disorder.

Model of Social Perception

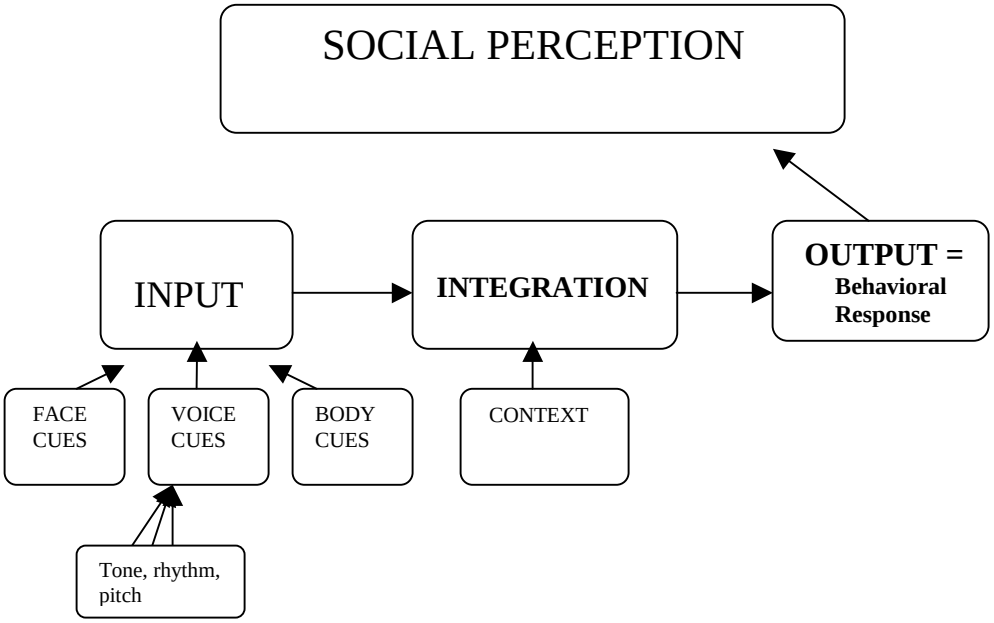
Johnson and Myklebust (1967) were among the first to describe difficulties in social perception, defining social perception as the ability to identify, recognize, and interpret the meaning and significance of the behavior of others. Most often, facial cues, body language cues, prosody or paralanguage characteristics (in other words, the emotional aspect of voice quality as defined by elements of tone, pitch, rhythm, etc…), elements of space and distance and social context are cited as the main components of social perception (Nowicki & Duke, 1994).

Similar descriptions may be found in the literature defined with other constructs. For example, social cognition has been defined as a child's ability to spontaneously read and correctly interpret verbal and nonverbal social and emotional cues, the ability to make an attribution about someone else's mental state or "emotion recognition" in others (Bauminger, 2002), while social communication has been defined as the communication of cognitive and emotional information through facial expression, gesture and prosody, and through implicit understanding of pragmatics and theory of mind (Tanguay, Robertson & Derrick, 1998).

Social perception is a complex process that can be broken down into the processes of input or perception, integration of the sensory input or interpretation, and output or behavioral response (Johnson & Myklebust, 1967). The input is often referred to in terms of *receptive* or *decoding* tasks, which ask a person to decipher an emotion based on a social cue. The integration process entails putting together input from several modalities and interpreting the intention of another. The output process generally refers to behavioral responses, referred to in terms of *encoding*, or *expressive* tasks, tapping the ability to accurately express an emotion through a social cue (Feldman, White & Lobato, 1982) and knowing what to say or do at a given time. A model of social perception can be constructed that shows how the nonverbal modalities may contribute to the input, integration and output processes (see Figure 1).

Figure 1

Model of social perception



Neuropsychological Basis of Social Perception

Many neuropsychological studies have implicated the important role of the right hemisphere in the social perception of facial cues (de Haan, Nelson, Gunnar & Tout, 1998; Rapcsak, Comer & Rubens, 1993; Voeller, 1994). For example, Voeller (1986) described children and adolescents with right-hemisphere lesions who had severe visual-spatial deficits as well as problems perceiving the emotional states of others. Studies of these patients suggest that right hemisphere is specialized for processing of socio-emotional information the same way that the left hemisphere is for language. Likewise, neuropsychological studies of adults and children with right hemisphere

damage have located elements of prosody to the right hemisphere (Cohen, Prather, Town & Hynd, 1990; Gandour, 2000; Ross 1981; Ross, Thompson, Yenkosky, 1997). A recent study (Streit, et al., 1999) showed that facial expression recognition tasks involve the inferior frontal cortex, amygdala, and different parts of the temporal cortex in a relatively consistent time sequence. The authors point out that their study provides the first evidence that social perception tasks are dependent on the activation of a spatial pattern of regions that likely involve a load on working memory.

Development of Social Perception

A wealth of research has been conducted surrounding the development of social perception throughout childhood. In general, social perception, decoding accuracy, and complexity increases with age (Blanck & Rosethal, 1982; Bullock & Russell, 1984; Custrini & Feldman, 1989; DePaulo & Jordan, 1982; Gross & Ballif, 1991; Harrigan, 1984; Izard, 1971; Semrud-Clikeman & Hynd, 1990; Morency & Krauss, 1982, Wells & Higgins, 1989). In fact, children as young as 3 years old have been shown to accurately decode facial expressions (Gross & Ballif, 1991). Semrud-Clikeman and Hynd (1990) note that in particular, facial expression plays a critical role in the social responsiveness of an infant. An infant who has difficulty processing visual-spatial and auditory stimuli (such as a mother's face and voice) will have potential delays in exploring the concrete world and may have potential attachment/separation delays from a parent. During the first year of life, children generally communicate through one nonverbal channel at a time. In infancy, social perception is generally characterized by the recognition of simple facial expression and gestures. However, integration of modalities emerges as a part of the cognitive developmental process, and is dependent upon early successful visual-motor exploration. According to Voeller (1994) these developing processing skills allow a child to show glimmers of perspective taking by the second year of life, and thus make a transition to from parallel to interactive play during the preschool years. During this time a child also begins to label basic facial

expressions and develops a general understanding of prosody (the pitch, rhythm and tempo of speech). During primary school, a child gains awareness of others' emotional state and develops empathy (Feldman, 1982). The child's social perception skills become good enough to match his behavior according to a situation based on past experience. In adolescence, a child begins to use cause-effect and abstract reasoning (involving imagined realities and symbols) to interpret the various cues and emotions found in social situations (Feldman, 1982). This coincides with what would be expected in Piaget's cognitive stage of formal operations (Myers, 1995).

Developmental studies of social perception have also found that emotion decoding accuracy varies with the emotion portrayed. For example anger and sadness are often confused by children (Reichenbach & Masters, 1983), as are neutrality and sadness (Felleman et al, 1983). Gross & Ballif (1991) also found that across ages, children respond to certain facial expressions more than others. In decreasing order, these emotions were happiness, sadness, anger, fear, surprise and neutrality. According to Rothenberg (1998) most children start out understanding and differentiating among three basic feelings: happy, mad and sad. However, children with NVLD will tend to stay with these three basic feelings longer than others and have difficulty distinguishing these from others that are similar.

The ability to decode cues coming through multiple modalities, both consistent (matching) as well as discrepant (unmatching) verbal, audio and visual cues, also has been shown to increase with age throughout childhood and adolescence (Blanck & Rosenthal, 1982; Bugental, Kaswan & Love, 1970; DePaulo & Rosenthal, 1978; Wells & Higgins, 1989). This finding is important because social interaction often consists of facial expressions, voice intonation, and context that do not necessarily match. When cues do not match, older children have been found to rely more heavily on less controllable cues (such as prosodic tone) to gain information more than younger children (Blanck, 1982; DePaulo & Rosenthal, 1978). In other words, practice has

taught older children that when they are faced with unmatching cues, they must pay attention to the tone of voice since it is likely to betray the true feelings of the speaker more than the face will.

It is important to make a note of the potential gender influences on social perception. According to Myklebust (1975), sex differences in the development of hemispheres in boys and girls implies that boys might be more handicapped with respect to nonverbal disorders, due to their greater early dependence on nonverbal functions. Recent empirical literature has not supported the idea that girls have stronger social perception abilities than boys (Gross & Ballif, 1991).

Assessment of Social Competence and Social Perception

Social competence has been assessed in a variety of ways, including ratings by others (parent and teacher), peer-referenced assessment (such as ratings of popularity) and naturalistic observation (Gresham, 1995). There is mixed opinion regarding which of these methods are preferable. Pellegrini and Glickman (2002) emphasize the importance of behavioral observations when assessing kindergarteners for social competence, arguing the need for early and frequent playground observations. The American Psychological Association Division 16 Task Force on evidence-based intervention research advocates a multi-informant and multi-method approach as the best way to acquire a comprehensive and ecologically valid assessment of functioning (Kratochwill & Stoiber, 2002).

It is somewhat more difficult to accurately measure social perception. Although many instruments designed to measures social perception exist, it remains difficult to find one instrument which can satisfy the needs of a methodologically sound study (Magill-Evans, Koning, Cameron-Sadava & Manyk, 1995; Trimboli & Walker, 1993). No single instrument for children found to date measures both several single modalities as well as modalities combined within a context. The existence of such a measure would enable a researcher to compare and contrast a child's performance on each

modality, as well as combined modalities, and thereby better assess where the child's problem lies with respect to social perception. The Diagnostic Analysis of Nonverbal Accuracy2, or DANVA2 (Nowicki & Carton, 1993) looks separately at facial expression and prosodic decoding abilities with differing intensities, and has been used successfully to discern social perception difficulties with several populations. The Child and Adolescent Social Perception Measure, or CASP (Magill-Evans, Koning, Cameron-Sadava & Manyk, 1995) looks at combined modalities in a contextual situation.

Populations with Social Perception Difficulties

"His father and I never suspected a problem because Adam was so bright. People constantly told us how gifted he was. He knew his shapes, colors, letters and numbers by the time he was little more than a year old. He couldn't SAY them because he didn't really start talking until almost 18 months, but he could point to them. At age 2, he could give his grandparents detailed driving directions around town. He taught himself to read at age 2(1/2). He knew all the states and capitals by age 4…how could such a bright child have any problems?" (Shery, 2000)

Nonverbal Learning Disabilities

Research indicates that at least 16-25% of children with learning disabilities experience social competence difficulties (Bender & Wall, 1994; Spafford & Grosser, 1993; Swanson & Malone 1992), including difficulty with interpersonal understanding (Kravetz, Faust, Lipshitz & Shalhav, 1999) and empathy (Sisterhen & Gerbee, 1989). Other reviews, however, show inconclusive evidence of a link between learning disabilities and social skill deficits (Bruck, 1986; Perlmutter, 1986; Sainato 1986). The difficulty with many of these inconclusive studies is the assumption that learning disabilities constitute a homogeneous population. Many of these studies have failed to split the learning disabled population into groups with nonverbal versus verbal deficits.

Perhaps one explanation for the correlation between social competence deficits and learning disabilities is that there exists a subtype of learning disability characterized by a specific problem with social perception and interaction. Rourke (1989, 1995) proposes that specific patterns of central processing abilities and deficits cause both specific manifestations of learning disabilities and specific forms of socioemotional disturbance and deficiencies in social competence. This proposition forms part of the basis for his model of nonverbal learning disabilities, which was discussed at length next. Spafford and Grosser (1993), in finding a correlation between learning disabilities and social difficulties, agree that deficits in cognitive processing may be sufficient to cause social as well as academic problems. Wiig and Harris (1974) found that learning disabled adolescents misinterpreted emotions more frequently than a control group, and concluded that the experimental group had deficits in the recognition and labeling of affective cues. Furthermore, they related these difficulties to visual-motor organization ability. In a key study examining differences in social skills between dyslexics and those with nonverbal learning disabilities, Badian (1992) found a significant difference in social behavior between good and poor readers. Closer examination showed that the key factor underlying this difference was due to the poor readers who had additional poor nonverbal skills. Poor readers in the study who were low in verbal IQ but high in performance IQ showed no social behavior problems.

A nonverbal learning disability (NVLD) refers to difficulty processing information that is presented nonverbally, such as visual-spatial stimuli or nonverbal aspects of language. Whereas once the prevalence was thought to be 1%, this is now thought to be a gross under-representation (Thompson, 1997). NVLD is considered to be a right hemisphere disorder since this type of learning disability is thought to be caused by dysfunction or maldevelopment of the right hemisphere (Myklebust, 1975; Pennington (1991) Rourke, 1989; Rourke, 1995; Semrud-Clikeman & Hynd, 1990; Teeter & Semrud-Clikeman, 1997). Generally, NVLD is characterized by three main types of deficits: motor, visual-spatial-organizational and social. Specific deficits

include abstract problem solving, concept formation, social perception of facial expression and prosody, social interaction, pragmatic use of language, reading comprehension, mathematical abilities, directionality, psychomotor coordination, bilateral tactile-perceptual deficits, adaptation to novelty, concept formation, and understanding of cause-effect (Fletcher, 1989; Johnson, 1987; Myklebust, 1975; Rourke, 1989; Rothenberg, 1998; Rourke, 1989; Rourke, Young & Leenaars, 1989). Rourke's (1995) model for NVLD lists primary, secondary and tertiary neuropsychological assets and deficits (see Appendix A for Rourke's full hierarchical model).

NVLD is considered to be on the continuum of right hemisphere disorders, bearing resemblance to other disorders on this continuum such as Asperger's Syndrome and High Level Autism. (Semrud-Clikeman & Hynd, 1990; Sparrow, Cicchetti & Rourke, 1995). There has also been significant research surrounding a condition known as "right hemisphere syndrome," which bears remarkable resemblance to nonverbal learning disabilities. A review by Semrud-Clikeman and Hynd (1990) compared this condition with NVLD and found that these disorders were more similar than dissimilar. Both right hemisphere syndrome and the condition known as NVLD are characterized by deficits in social skills, spatial orientation, problem solving and recognition of nonverbal cues. Given these similarities, one can draw inferences from right hemisphere syndrome to nonverbal learning disabilities. (Gross-Tsur, Shalev, Mano & Amir, 1995; Weintraub & Mesulam, 1983; Voeller, 1986, 1995).

Socially, a child with NVLD appears to have strong verbal skills, yet will perceive and interpret situations inaccurately (Hartas, 1998; Johnson, 1987; Thompson, 1987; Rothenberg, 1998, Rourke, 1987; 1995). The perception of faces, voices, and gestures is problematic, as well as the ability to put them together into a meaningful whole. Change in voice deliverance or emphasis is often not detected, resulting in problems understanding humor, sarcasm, and subtleties. A child with NVLD will likely

have problems with the pragmatic and semantic systems of language, and tend to be overly literal (Gross-Tsur et al., 1995; Rourke, 1995). These children's conversation does not follow others', and so their speech has been referred to as "cocktail party" speech. They have trouble generalizing their behavior to novel situations, and cannot generalize appropriate behavior across situations. Due to their difficulty with social perception, they will often not respond appropriately to others in social interaction. In addition, children with NVLD may have problems with making appropriate eye contact, social distance and show unnatural affect, such as laughing and talking too loudly (Johnson, 1987)

Assessment and Diagnosis of NVLD. There is no one instrument used to diagnose NVLD. The crucial determinant has often been the relative discrepancy between verbal IQ (VIQ) and performance IQ (PIQ) on intelligence tests (Johnson, 1987). This discrepancy can range from ten to sixty or more points. Clinicians disagree on the exact criteria for a diagnosis of NVLD (Thompson, 1997). It is not unusual for a child diagnosed with NVLD to have a verbal IQ in the very superior range. Though many clinicians use the PIQ-VIQ discrepancy for diagnosis, it is not always sufficient for a diagnosis of NVLD, since approximately 25% of the general population has a discrepancy of this kind without other aspects of the disorder (Sattler, 1992). Rourke (1995) and Semrud-Clikeman and Hynd (1990) suggest a battery of tests for diagnosis that coincide with dimensions of the syndrome (motor, tactile/perceptual, visual/spatial/organizational, auditory/perceptual, attention/memory, problem solving, language, academic achievement and psychosocial functioning) as opposed to just the VIQ-PIQ discrepancy. Although this comprehensive assessment is beginning to be done in clinical settings, it is not generally part of school diagnostic procedure

Neuropsychological Model of NVLD. Rourke (1989, 1995) developed a "white matter model "of NVLD which states that NVLD is the result of the destruction or dysfunction of white matter (the long myelinated neural fibers) in the right hemisphere

of the brain. This model is based on the work of Goldberg and Costa's (1981) neurodevelopmental theory of hemispheric differences. Essentially, the two hemispheres are thought to work together on most tasks, yet through two different processing modes. Neurological findings indicate that the grey to white matter ratio is greater in the left hemisphere than in the right, indicating that the left has more nonmyelinated and short fibers, and the right has more long myelinated fibers. Thus, the right hemisphere has more association areas and specializes in intermodal integration, while the left functions more according to specific modality areas. The right hemisphere is equipped for processing multi-modality input, whereas the left is best adapted for single mode information input and processing. Thus, the right would play a greater role in analyzing complex schematic info such as performing spatial imagery tasks.

According to Goldberg and Costa (1981), this difference also implies that the left hemisphere is superior in analyzing and classifying info into existing schemas, whereas the right is most adept at first processing novel information. Since the right hemisphere has more interhemisphere connections than the left, if the white matter development is interrupted or delayed, and the interconnections lost, then the right hemisphere functioning would be more compromised or damaged. This dysfunction in development, according to Rourke (1989), results in the NVLD syndrome, causing deficits in understanding and retaining visual-spatial information. Semrud-Clikeman and Hynd (1990) furthered this conceptualization. Since the right hemisphere develops faster than the left between 18 to 24 months of age, and most of the arborization of dendrites and myelination occurs after birth, there is likely a greater involvement of the right hemisphere during infancy. Indeed, much of an infant's learning is nonverbal through the perception of visual-spatial relations, patterns and sounds. It is thus logical to assume that disruptions in neuronal development during and following pregnancy will have a greater negative impact on the right brain than the left brain. As a result, the

young child may be hindered in sensorimotor exploration and the development of spatial and numerical concepts.

Rourke's (1989) model links these visuo-spatial deficits to deficits in social perception. Emotional processing can be viewed as a spatial task, since the relationships among emotions must be assessed and analyzed (Borod, Andelman, Obler & Gerstman, 1992). Developmentally, the relationship between spatial and social deficits may progress as follows. A child's earliest nonverbal information comes from learning to process visual and voice input from a parent. These nonverbal signals and associated feeling states are internalized as patterns of relating. When moods and signals match, it results in a congruence of feeling and sense of well-being in the child. Children who have difficulty processing visual-spatial information will have difficulty internalizing these visual templates. This will result in less exploratory behavior, and hinder both spatial cognition and social/emotional development. Pennington (1991) argues that the connection between visual-spatial abilities and social perception is less clear, since these could be separate processing mechanisms that react similarly to right hemisphere insult (damage).

The varied difficulties with social perception in NVLD can be also viewed in the context of Luria's (1973) model of functional systems in the brain. A functional system involves the integrated participation of a number of cortical areas. This means that it is not possible to narrowly localize a complex mental function, such as reading, or social perception, within a discrete cortical region. Luria also described the development of higher mental functions as a hierarchical system of increasing complexity. As the higher mental activities develop, basal functions are no longer needed. This coincides with the progressive left hemispheric specialization conceptualized by Goldberg and Costa (1981). For example, when a child begins a complex skill such as reading, she must use visual memory and spatial skills to decode letters and then words. As this skill develops, it becomes automatized, in both nondisabled and nonverbal learning disabled

children. One can then hypothesize that, like reading, simple social perception tasks (such as decoding a single emotion from facial expression) might or might not become automatized or compensated for by the time a child with NVLD reaches adolescence. In fact, profiles of NLVD indicate that often an individual has learned how to compensate in one or more areas by adolescence (Thompson, 1997). Complex tasks such social interaction, which requires the integration of input from several modalities; however, would likely still be problematic. Emotional material in particular may have the effect of exceeding the working memory of the NVLD group (Worling, 1998), causing problems in the integration of the elements in social interaction.

NVLD and Difficulties with Social Perception: Empirical Support. Very few studies have looked specifically at children with NVLD and social perception deficits (Little, 1993). Kaminska (1994) compared an NVLD group to a VLD and control group on an experimental facial recognition task and found that relative to the control group, the NVLD group had difficulties decoding emotions in the visual modality. Similarly, Dimitrovsky, Spector, Levy-Shiff and Vakil's (1998) results support the observation that children with NVLD have social perception deficits with static stimuli. A recent study by Dir (1999) compared a nonverbal learning disability group to a VLD group and control group on the Child and Adolescent Measure of Social Perception (CASP), a measure of social perception in context. Results initially showed that both groups of LD children scored lower than controls on the CASP. However, when verbal ability was used as a covariate, the NVLD group performed much lower than the VLD group performance. After controlling for verbal ability, the VLD performance approximated that of the control group on this measure of social perception.

Autistic Spectrum Disorders

Over the past 10 years, there has been a definitive change in the way autism is viewed. Autism is now often viewed as a spectrum of social-cognitive deficits rather

than a distinct disability. Currently, five psychological disorders defined by the Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, American Psychiatric Association, 1994) are considered to be "Pervasive Developmental Disorders" (Towbin, 1997, p.123). These are Autism, Asperger's Syndrome (AS), Rett's Syndrome, Childhood Disintegrative Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS). Rett's Syndrome and Childhood Disintegrative Disorder are usually associated with severe mental retardation (DSM-IV, American Psychiatric Association, 1994). Generally, PDD-NOS is a diagnostic term used for those individuals with pervasive developmental disorders whose clinical symptoms do not fit into one of the other diagnostic categories. For this reason, the diagnosis of PDD-NOS is often used in one of the following ways: when one of the three core features of autistic disorder is mild or absent, when developmental information is inadequate or unreliable, when symptoms are of late onset, and when additional symptoms are present that are not part of the autistic spectrum (Towbin, 1997).

Several recent studies including cluster analyses (Prior, Eisenmajer, Leekam, Wing, Gould, Ong & Dowe, 1998; Robertson, Tanguay, L'Ecuyer, Sims & Waltrys, 1998) and a 10 year review of literature on pervasive developmental disorders (Tanguay, 2000) have supported the concept of an autistic spectrum. Three factors of social communication in adults with autism, Asperger's or PDD-NOS have been identified: affective reciprocity, joint attention and theory of mind (Tanguay, Robertson & Derrick, 1998). The authors concluded that a continuum or spectrum of social difficulties might be more appropriate for classifying more mild forms of autistic spectrum disorder such as Asperger's Syndrome.

High Functioning Autism. Autism is a neurodevelopmental disorder affecting the ability to communicate, form relationships with others and respond appropriately to

environment. The presence of autism is approximately 1 in 2000 (Tanguay, 2000). It includes a broad range of functioning; while some affected individuals have intact speech and intelligence, others can be mute, language delayed, or have severe cognitive deficits. Autism is usually considered "High Functioning Autism" (HFA) when average to above average intelligence and intact verbal ability is present. The Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, American Psychiatric Association, 1994) has the most widely used definition of autism, stating that a diagnosis can be made if a child meets six or more criteria under categories of impairment in social interactions, impairment in communication, or repetitive and stereotyped behaviors (see Appendix B). Specifically, a child must meet two criteria under social interactions and one under both communication and stereotypic behaviors. Symptoms must be present before the age of 3 and usually begin in infancy, identified by a lack of eye contact and response to interaction.

Many children with autism have difficulties using information from social cues to interpret others feelings and thoughts. This cognitive deficit is often termed a lack of "theory of mind" (Baron-Cohen, Leslie & Frith, 1985). Consequently, individuals with autism have difficulty taking another's perspective. For example, theory of mind studies indicate that children with autism were unable to identify how another child would respond to a situation even when given information to complete the task (Happe & Frith, 1995). In addition to problems understanding communication, children with autism have been shown to have problems expressing themselves effectively through body language, facial expression and intonation, increasing their frustrations in trying to communicate. An additional symptom found in children with autism, though not listed as diagnostic criteria, is difficulty integrating sensory information. As a result, children with autism often are very sensitive to sensory stimulation (Frith & Baron-Cohen, 1987). Difficulties with hyperactivity, attention and impulses are also common (Tsai, 1999) as are a relative lack of creativity and imaginative play (Craig & Baron-Cohen, 1999).

Asperger's Syndrome. Asperger's Syndrome (AS) has been referred to as "Autism's shadow" (Hayden, 1988) due to its similarity to the autistic profile. Asperger's Syndrome is a neurodevelopmental disorder defined by social deficits and restricted areas of interest (as in autism) but, unlike the usual presentation of autism, language and cognitive ability is usually intact from an early age (Volkmar & Klin, 2000). The prevalence rate has been estimated to be as high as 3 to 7 per 1,000, though this is perhaps an overestimate (Ehlers & Gillberg, 1993). It is believed to aggregate in families. Asperger's Syndrome, though defined in 1944 by Austrian Hans Asperger a year after Kanner published his famous paper on autism, remained virtually unknown until 1981, when the condition was reintroduced (Frith, 1991). It was included as a diagnostic category in the latest edition of the DSM-IV (see Appendix B). The DSM-IV states that two primary clusters of traits must be present for a diagnosis of autism: a qualitative impairment in social interaction, and unusually restricted areas of interest/stereotyped behaviors and activities. Their restricted areas of interest can result in long, pedantic speeches about special topics (such as railroad schedules) with little awareness of the listener's interest or lack of interest. Over the years, children with autism have been referred to as "little professors without social skills" (Safran, 2001, p. 154). The DSM-IV also states that there is usually no delay in language development, though this is currently debated in the literature.

Asperger's Syndrome (AS) is generally characterized by major difficulties deciphering nonverbal cues and behavior such as tone of voice, gestures, facial expressions, jokes, nuances and body language. Children and adolescents with AS have trouble learning easily from new experience, become anxious with change in routine and have difficulty with flexibility. For example, a child with Asperger's may become upset if an exception is made in a classroom rule. Other characteristics often noted (though not in diagnostic criteria) are egocentric and idiosyncratic behavior, motor clumsiness, inappropriate expression, odd, pedantic speech and impaired use of social

language, and odd eye contact. For example, they may seem to gaze off or stare through others when conversing. Other children usually consider them “strange” or “weird” (Atwood, 1998). They may have some sensory dysfunction, such as inappropriate touching, or an extreme sensitivity to touch.

Asperger’s is usually differentiated from high functioning autism by the quality of social interaction and lack of characteristic behaviors of autism. In fact, their disability may be particularly painful because they are so high functioning; many children with Asperger’s also meet the criteria for intellectual giftedness, leading their parents and teachers to misinterpret their behavior as oppositionality or insolence. Often they are mistakenly placed in classrooms for children with behavior disorders such as conduct disorder, setting them up as perfect victims (Volkmar, Klin, Schultz, Rubin & Bronen, 2000). Neihart (2000) proposes that gifted children with Asperger’s may not be identified because of the similarity between Asperger’s behaviors and characteristics of gifted children. For example, both groups often have verbal fluency, excellent memories and unusual interests.

Autistic Spectrum Disorders and Social Perception Deficits. Deficits in social perception, both interpretive and expressive, are at the heart of autistic spectrum disorders. The difficulties often vary among individuals since a child may have trouble at one or more steps in the social perception process. For example, he/she may have particular difficulty understanding voice intonation, or expressing emotion through the face, or both. If one deficit is especially marked, this results in different presentations in different people (Tantam, 2000; Volkmar, Klin & Sparrow, 2000). For example, many older children and adolescents do not appear to be deficient in interpreting specific facial emotions at a basic level. Grossman, Klin, Carter & Volkmar (2000) suggest that older children may have developed compensatory strategies such as verbal mediation that younger children have yet to develop. Recent studies investigating these nonverbal deficits among autistic spectrum disorders include an investigation of errors in prosody, stress and resonance (Shriberg, Paul, McSweeny, Klin, Cohen & Volkmar, 2001), and

verbal bias in the processing of faces in Asperger's (Grossman, Klin, Carter & Volkmar, 2000). Authors hypothesize that this compensatory strategy may be related to inflexibility in style that is characteristic of the Asperger profile. In a recent study, twenty-one 12-year-old boys with Asperger's Syndrome had significant differences on CASP and SSRS scores, as well as number of friends and frequency of contact (Koning, 2001).

The concept of "theory of mind", also widely referred to in the autistic literature, has been defined as "the ability to make inferences about others' mental states" (Stone, Baron-Cohen, Knight, 1998). This is similar to the concept of empathy, which has been defined as a "complex inference in which observation, memory, knowledge and reasoning are combined to yield insights into the thoughts and feelings of others" (Ickes, 1997). Many recent studies show evidence of deficits in children and adults on the autistic spectrum on advanced theory of mind tests, both visual and auditory, though they perform well on simple tasks (Baron-Cohen, Jolliffe, Mortimore & Robertson, 1997; (Happe, 1994; Heavey, Phillips, Simon Baron-Cohen & Rutter, 2000; Jolliffe & Baron-Cohen, 1999; Roeyers, Buysse, Ponnet, & Pichal, 2001; Rutherford, Baron-Cohen & Wheelwright, 2002).

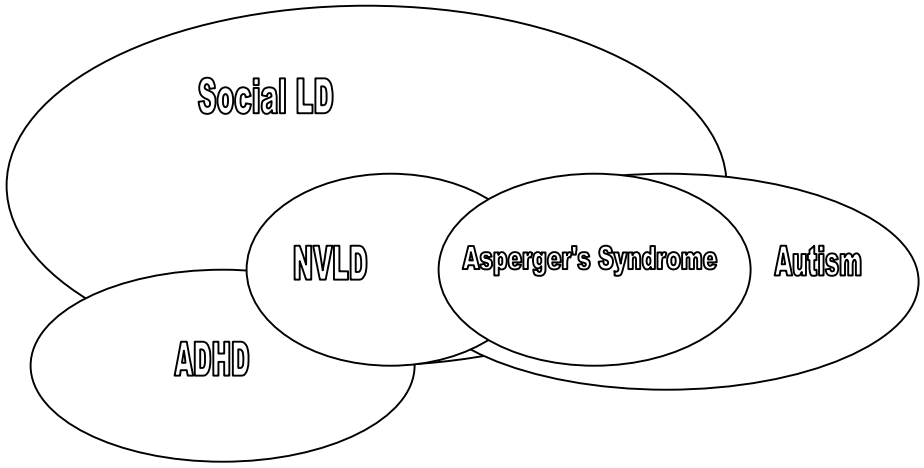
Convergence among Asperger's, HFA & Nonverbal Learning Disabilities. There is some disagreement about the validity of Asperger's Syndrome, including a longstanding debate about whether Asperger's and HFA are distinct (Wing, 1991), and a newer debate about whether Asperger's actually represents a more severe form of NVLD (Volkmar & Klin, 1998). For example, in comparisons of individuals with HFA and AS on several domains, AS participants were found to have significantly higher full scale and verbal IQ, larger Verbal-Performance IQ discrepancies (Lincoln, Courchesne, Allen, Hanson & Ene, 1998), and significantly better visual-perceptual skills than those with HFA, though no significant differences in gross motor, visual-spatial or executive function. Some researchers suggest that AS may in fact be a form of high functioning autism (Gilchrist, Green, Cox, Burton, Rutter & Le Couteur, 2001; Miller & Ozonoff,

2000). In other studies, the neuropsychological profile of Asperger's Syndrome was found to be matching that of NVLD, but not HFA (Gunter, Ghaziuddin & Ellis, 2002; Klin, Volkmar, Sparrow, Cicchetti & Rourke, 1995). Also, visuospatial functioning and motor skills have been found to be higher in autistics in several studies (Schultz, Romanski & Tsatsanis, 2000). In fact, much of the literature asserts that nonverbal skills are likely to be higher than or on par with verbal skills in classical autism (Sparrow, 1997). Ghaziuddin and Gersein (1996) also state that a pedantic speaking style can differentiate Asperger's from high functioning autism.

This conflicting research calls into question the validity of the diagnostic process, and supports the theory of that these developmental profiles do not represent distinct entities, but may be overlapping domains of functioning which, in fact, may vary widely among individuals. See Figure 2 for an example of proposed convergence among these diagnostic categories.

Figure 2.

Proposed convergence among nonverbal learning disabilities, high functioning autism and Asperger Syndrome (Harnadek & Rourke, 1994)



Neuropsychological Basis of Autistic Spectrum Disorders. The neuropsychological basis of the autistic continuum continues to be explored and is largely in its infancy. With the advent of newer imaging techniques such as functional magnetic resonance imaging (FMRI), researchers are beginning to map the complex circuitry that may underlie these disorders. Traditionally, the role of the left-hemisphere has been emphasized in autism, while Asperger's has been hypothesized to be a right hemisphere disorder (Schultz, Romanski & Tsatsanis, 2000). Conclusions from a very recent study conducted by Rinehart, Bradshaw, Brereton & Tonge (2002), suggest that the period where dominance shifts from right to left hemisphere might determine the

emergence of autism or Asperger's. In addition, there is evidence of frontal lobe dysfunction in autistic spectrum disorders (Nyden, Gillberg, Hjelmquist & Heiman, 1999; Schultz, Romanski, & Tsatsanis, 2000; Stone, Baron-Cohen & Knight, 1998) which is consistent with deficits in executive functioning.

A recent model of neuropsychological functioning in Asperger's Syndrome was developed by Schultz, Romanski and Tsatsanis, (2000). Their model stresses the central role that the amygdala plays in social-emotional functions. They describe their working model of AS as "dysfunction of diverse frontal and temporal cortical systems, perhaps with some bias toward right hemisphere dysfunction" and "have attempted to identify parallel frontal and temporal loops through the amygdala necessary for social - emotional functioning" (p. 195). Though many studies implicate localized areas of the brain in specific function, such as less functioning in the fusiform gyrus (FG) in facial recognition (Schultz et. al., 2000), researchers caution against mapping a complex skill to any one area:

> Although it is true that there is modularity in brain function, with different regions assuming responsibility for different cognitive, perceptual, emotional and motor functions, it is perhaps a stumbling block in our thinking to become too enamored with the localization of function. In isolation, the brain never does anything of practical significance….these regions operate in cooperation with many other regions, and they are merely one node in a distributed network (Schultz, Romanski & Tsatsanis, 2000, p. 195).

Attention Deficit Hyperactivity Disorder: The Issue of Comorbidity

Attention Deficit Hyperactivity Disorder (ADHD) has a high comorbidity (or co-occurring) rate with both learning and developmental disorders. Voeller (1994) found that in a study of fifteen children with nonverbal learning disabilities, all but one met clinical criteria for ADHD. Gross-Tsur, et al. (1995) identified ADHD in all of her 20 subjects with developmental right-hemisphere syndrome, which shares a similar

profile with NVLD. Attention deficits have also been noted in autistic spectrum disorders in several studies, particularly in Asperger Syndrome (Schatz, Weimer & Trauner). Neurological research suggests a possible etiological connection between ADHD and right hemisphere disorders (Brumback & Staton 1982; Conners, 1970; Hynd, Semrud-Clikeman, Lorys, Novey & Eliopulos, 1990; Posner, Peterson, Fox & Raichle, 1988). Sheppard, Bradshaw, Mattingley and Lee (1999) found right hemisphere anomalies in ADHD compared to left hemisphere anomalies in autism. Specifically, the right pre-frontal cortex may play a role in inhibitory control; there is evidence that ADHD subjects show less activation of this area during tasks demanding impulse control (Pliszka, 2002). Similarly, Asperger's Syndrome and ADHD share similar profile of executive dysfunction (Nyden, Gillberg, Hjelmquist & Heiman, 1999) which is based in the frontal lobe.

Pennington (1991) defines ADHD as a psychiatric disorder defined by problematic behaviors reflecting inattention, impulsivity, and hyperactivity. In addition, children display some difficulties with working memory, perhaps caused by the deficits in inhibition. There are three subtypes of ADHD: predominantly inattentive (ADHD-PI), hyperactive/impulsive (ADHD-HI), and combined (ADHD-C). (Barkley, 1996; Pennington, 1991). According to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, (DSM-IV), approximately 3-5% of school age children have one of the three subtypes of ADHD (APA, 1994). Since there is no pattern of test scores on a standard psychometric test that clearly diagnoses ADHD, a diagnosis of ADHD is often based on symptoms noted in behavioral rating scales by parents and teachers (Pennington, 1991). These rating scales should note critical symptoms in three critical areas of inattention, impulsivity and hyperactivity for a diagnosis of ADHD combined but not inattentive. The Behavioral Assessment System for Children (BASC) (Reynolds & Kamphaus, 1992) is an example of such a rating scale.

There are some similarities in both the phenotype and neurological profile for NVLD and ADHD that may account for the large comorbidity rate. For example,

Rourke (1989) mentions that many younger children with NVLD are misdiagnosed with ADHD because of early externalizing symptoms that later develop into internalizing symptoms. It may also be that perceptual difficulties make it harder to pay attention (Rourke, personal commentary, 2000). Perhaps the comorbidity rate is due to overlapping diagnostic criteria; perhaps there is a similar etiological basis for both disorders.

Though some social perception difficulties have been documented in children with ADHD alone (Frederick & Olmi, 1994; Gresham & Elliot, 1990), the question of social perception problems in children with ADHD is not entirely clear. Attention often plays a role in measures of social perception, thus confounding the results (Magill-Evans, Koning, Cameron-Sadava & Manyk, 1996). Research suggests that children with ADHD exhibit problems with social judgment based on impulsive responding or inattention to cues as opposed to actual processing deficits (Carrol, Bain, & Houghton, 1994; Whalen, et al., 1990). For example, Egan, Brown, Goonan, Goonan and Celano (1998) found that children with externalizing behavior disorders performed as well as controls on social decoding tasks. Sprouse, Hall, Webster and Bolen (1998) studied social perception in LD and ADHD groups to try and differentiate difficulties in accuracy. On a facial expression subtest, the LD group without ADHD diagnosis had more of a problem than the LD/ADHD group. A similar study compared ADHD, ADHD/LD and control groups on the Diagnostic Analysis of Nonverbal Accuracy (DANVA, Nowicki & Duke, 1994), showing that only the comorbid ADHD/LD group had social perception problems on a task requiring the reading of voice pitch, stress and inflection (Hall, Peterson, Webster, Bolen & Brown, 1999).

Recently, children with ADHD were found to have difficulty on the Child and Adolescent Measure of Social Perception (CASP) during a pilot study conducted by Kaufmann, Wilson, Lyle and Semrud-Clikeman (2000). An attention confound may account for the result, and further study is needed. To further complicate the matter, Rourke (1989) lists attention problems as a secondary deficit in his model of NVLD.

He argues that attention and memory difficulties develop in areas (such as visual spatial input) that are problematic for children with NVLD because they tend to avoid these tasks and develop attention skills primarily through the verbal modality. Accordingly, the current study's research design will attempt to clarify what is and what is not affecting social perception by controlling for the attention factor through group matching.

Summary

In short, it is not clear whether the social competence difficulties experienced by children with both autistic spectrum disorders and nonverbal learning disabilities result from similar or different etiologies. However, there is substantial evidence to support that these populations have difficulty with one or more steps in the social perception process (input, integration and output) as well as perspective taking ability. Clearly, there is a need for interventions that address these specific deficits.

Existing Social Skills Interventions

Generalized interventions

The last few decades have seen a proliferation of social skills training programs created for children and adolescents. Traditionally, social skills programs have used one of four approaches: operant conditioning procedures (reinforcement, punishment, shaping), coaching (verbal instruction, guided rehearsal), social learning approaches (modeling, scripted role playing, reinforcement), or cognitive-behavioral techniques (Matson, Sevin & Box, 1995). Many use videotaping for review (Cox & Schopler, 1991). Typically, role play is modeled by a therapist with various outcomes. For example, in a manual produced by Polyson and Kimball (1993), the therapist presents increasingly complex social interactions with both appropriate and inappropriate responses. The child is coached to use appropriate voice tone and physical distance, and monitor behavior through self talk.

Areas targeted for training have typically included eye contact, social cause/effect, turn-taking, sharing, showing of affection, approaching others, following a conversational topic and conflict resolution (Cox & Schopler, 1991). Although these skills are necessary for social competence, programs that focus solely on these skills rest on the assumption that social skills difficulties always result from a lack of knowledge. Subsequently, their objectives focus on skill acquisition, enhancing skill performance, reducing interfering behaviors (Gresham, 1997).

According to several meta-analyses, however, these types of programs have not been successful in effecting lasting change. An assessment of 38 studies conducted between the years 1976-1985 found that a majority of programs did not adequately measure generalization of skills to determine whether the skills taught were considered socially valid in the child's environment (Hughes & Sullivan, 1988). A more recent analysis of 49 programs in use with 3-15 year-olds from 1981-1990 indicates that although many programs appear to produce change in the short term, the skills learned do not generalize across time or setting. Another recent meta-analysis of social skills training programs (Forness & Kavale, 1996) showed a mean effect size of .21. Multimodal programs have been more successful; these programs show a low but significant long-term effect compared to others (Beelmaan, Pflingsten & Losel, 1994).

There are several possible reasons why the programs have not been successful in generalizing skills. First, social skills programs have traditionally failed to match training with specific deficits (Gresham, 1997). A meta-analysis done by Forness and Kavale (1996) indicated that most programs represented a collection of techniques with little theoretical rationale. Children with "social skills problems" have generally been grouped together and considered homogeneous, when in fact the deficits of different diagnostic groups differ greatly. Although most programs have targeted acquisition deficits (the child "can't do"), others have performance deficits ("won't do") and still others have interfering problem behaviors. Furthermore, these deficits occur at different steps in the social interaction process. Thorough assessment of children's social skills is

necessary so that programs can be tailored to specific domains of social competence. In fact, programs targeting direct goal criteria have been more successful in producing effect sizes (Beelman, Pflingsten & Losel, 1994). Merely teaching appropriate skills will not be sufficient for the development of social competence.

Furthermore, the child's social environment is rarely included in the intervention itself; thus, interventions are not considered to be "ecologically valid". In order for social skills to generalize, skills must be strengthened in the presence of competing behaviors (Gresham, 1997). For example, a child may learn an appropriate social "script" in the presence of a therapist; at school, however, it may prove to be obsolete when the child is presented with an unprecedented situation with peers. In real life, others are active, dynamic participants and their responses are unpredictable (Cox & Schopler, 1991).

As of yet, there has been little done in the area of social perception modification as a component of general social skills training (Carlyon, 1997). Recently a few interventions have incorporated attribution training into their programs, believing that attributions have been a missing cognitive variable. Since attributions are often interpreted on the basis of nonverbal cues, this approach appears to have tapped into social perception modification (Carlyon, 1997). For example, Hudley and Graham (1993) introduced an intervention that trained participants to look for, interpret and categorize the verbal and nonverbal cues of intentionality given by others in social dilemmas. More recently, a social skills training program for children identified with disruptive/impulsive behaviors emphasizing self and other perspective taking showed a positive result at post-treatment as well as 9-month follow up (Grizenko et al., 2000).

Targeted interventions

Interventions targeted for children with ADHD have focused on the target skills of social entry, inhibition of impulses, maintaining interactions and problem solving (Sheridan, Dee, Morgan, McCormick & Walker, 1996). Recently, many programs have

surfaced targeting children specific disorders. Throughout the last decade, recommendations for working with children with Asperger's Syndrome and high functioning autism have included the use of social stories (a description of a social situation specific to individuals and circumstances), comic strip conversations (Gray, 1995), speech and language therapy training with social scripts, integrated play groups, direct training in social reading, teaching self-monitoring of conversation, social rule training, direct instruction in choices and consequences, and peer mediation (Bashe & Kirby, 2001; Klin, Volkmar & Sparrow, 2000; Myles & Simpson, 1998, Rogers, 2000; Quill, 1995). Quill (1995) stresses Vygotsky's (1967) belief in the importance of enhancing imaginative play with children on the autistic spectrum as a way to develop social perception, construct shared meaning and acquire social knowledge.

Generally, interventions for targeted for children with specific disorders have had mixed evidence of success. According to Frederick and Olmi (1994), few studies designed for children with ADHD have generalized over time. Likewise, interventions targeting high-functioning children on the autistic spectrum have shown only limited improvements in social and behavioral functioning (Crager, 2003; Marriage, Gordon and Brand,1995; Ozonoff and Miller, 1995; Provencal, 2003), though comic strip conversations were successful in significantly improving conversational skills in a recent study in a sample of children with Asperger's (Gray, 1998). Two studies using single-participant designs showed significant improvements in social skills, but skills did not generalize to the home setting (Barry, Klinger, Lee, Palandy, Gilmore & Bodin, 2003; Webb, 2003). A number of programs for children with autism have with demonstrated success; however, these are usually comprehensive programs targeting low-functioning young children, such as the LEAP program (Learning Experiences: An Alternative Program for Preschoolers and Parents, Strain & Hoyson, 2000). A review of sixteen empirical studies using social interactive training to improve early social communicative skills found increases for target behaviors, but limited generalization or maintenance over time (Hwang & Hughes, 2000). Increasingly, researchers are coming

to the conclusion that the autistic spectrum disorders need a very different type of social intervention. According to Kransny, Williams, Provencal and Ozonoff (2003), such programs need to break down complex social behaviors into concrete steps in order to be effective. Research conducted by Gutstein and Whitney (2002) suggests that interventions for Asperger's Syndrome and related disorders should take a different approach than traditional interventions, and focus on the experience of sharing relationships. They advocate that programs shift away from survival oriented social behaviors and work on developing the skills to adapt feelings, actions and ideas in relationships with others. Also, they emphasize that many experiences of happiness should be built into the intervention. Gutstein's (2002) Relationship Development Intervention Model is one of the first programs with this focus developed for young children (ages 2-8) with Asperger's Syndrome. Unfortunately, no published outcome data is yet available from this program.

Studies are only recently beginning to be developed for these populations that incorporate training in the reading of nonverbal cues. For example, a study by Bauminger (2002), though described as cognitive-behavioral, targets the teaching of interpersonal problem solving, affective knowledge and social interaction. When the intervention is examined, it appears that sessions include some training in perception of nonverbal cues and perspective taking. In another recent study, eight adolescents with Asperger's syndrome and other pervasive developmental disorders were tested with the DANVA2 after participating in an 8-week intervention designed to train them in recognition and interpretation of nonverbal cues (Barnhill, Cook, Tebbenkamp & Myles, 2002). Though quantitative results showed no significant differences, improvements in scores were present for the majority of participants. Also, parent and child feedback were positive. The researchers recommend that future studies increase the length of intervention and include a larger sample size. In addition, several participants had comorbid diagnoses of Oppositional Defiant Disorder or Intermittent Explosive Disorder, which may have compromised study results.

Several independent, private programs have recently emerged and are being marketed to parents over the internet addressing the social needs of children with autistic spectrum disorders and nonverbal learning disabilities. The “Social Thinking” summer program (Winner, 2002) describes itself as a program for children with social cognitive deficits, grouping together children with Asperger’s, high functioning Autism, Nonverbal Learning Disorders and PDD-NOS. Children with serious compliance issues are excluded. This approach appears promising; however, there appears to be no information about its efficacy, and the high cost raises questions about its transferability to the school setting. Activities include training in understanding noverbal behavior, perspective taking, and videotaping/ watching of interactions.

In summary, social skills training programs appear to be inefficient for children and adolescents with nonverbal learning disabilities and autistic spectrum disorders unless these populations are specifically targeted and perceptual and interpretive processes are directly addressed. These processes include an understanding of facial expressions, voice intonation, emotional recognition and gestures, as well as an emphasis on perspective taking to strengthen empathy and theory of mind. Though some recent programs have incorporated these elements into their curriculum, there has been little to no research on their success.

Drama as Educational Intervention

The following section will introduce the use of participatory drama as an educational intervention. First, the history of drama in education will be presented, and two types of participatory drama methods, creative drama and process drama, will be defined. Next, an argument will be made proposing the use of drama activities with children who have difficulties in social perception. Finally, empirical support for drama in education will be reviewed.

Drama in Education

Drama-in-Education (DIE) is generally referred to as the use of drama process as a way to teach variety of subjects or to supplement a school's curriculum (Heathcote & Bolton, 1995). This methodology, widely used in British and Australian education, emphasizes the experience and process of creating drama rather than producing a performance. The goal of drama facilitators is to provide a safe space for a group to create shared meaning by exploring topics through pretense and imagination. In this way, Drama-in-Education is distinguished from Theatre-in-Education, which refers to the use pre-written and rehearsed material usually performed by theatre companies for school audiences to teach a specific topic. Techniques used in drama-in-education include creative drama and process drama, which will be described further below.

The use of drama as a teaching tool became widely known by Dorothy Heathcote, a British educator who developed the "mantle of the expert" approach in the 1950's. In this approach to education, an imagined dramatic context is created in which students are empowered by making decisions. For example, children learning about life in a medieval monastery might create a monastery setting and adopt different roles in a monastery to better learn about the lifestyle (Heathcote & Bolton, 1995) By taking on roles as experts in a shared enterprise (such as the monastery), students become "experts" in the subject matter as well as "experts" in the learning process itself. Although Heathcote (1988) developed this method of teaching with the hopes that it would be used in general education practice, it has promising potential for use and demonstrated success with a variety of populations.

Creative Drama

Creative drama activities are often used within drama in education. The Children's Theatre Association of America (1977) defines creative drama as "an improvisational, nonexhibitional, process-centered form of drama in which participants are guided by a leader to imagine, enact and reflect upon human experiences. According

to O'Neill (1995), creative drama is grounded in experiential learning and influenced by the drama leader Stanislavski, who incorporated improvisation in his training of actors, and emphasized importance of observation in the giving and taking of interpersonal cues, imagination, concentration, sensory awareness and adaptation in the drama process. Creative drama refers to many types of techniques, including both cooperative and traditional games, story dramatization and improvisations. Many creative drama games and activities have been popularized over time and are widely used in schools, drama programs and theatres around the world, including work by Viola Spolin (1986) and Nellie McCaslin (1990). Creative drama techniques have also been largely influenced by Augusto Boal's work with the Theatre of the Oppressed (1979), whose work included image theatre (creating still images of concepts with bodies) and forum theatre (improvisations in which various students take turns being the protagonist as a way to explore other solutions to a problem) (Grady, 2000). At the heart of creative drama work is the belief in the process approach; the work is done for the participants rather than for an audience; in other words, "the purpose of playing for the players" (McCaslin, 1990).

Process Drama

In process drama, as in the mantle of the expert approach, (also referred to as role drama), a group and leader embark together on an improvised dramatic journey. While process drama is similar to the 'mantle of the expert' approach to education, it differs in subtle ways. As in the mantle of the expert approach, participants take various roles in a drama and write their own dramatized story based only on a context, roles and theme. Unlike mantle of the expert, process drama contains an unexpected key "conflict" or problem introduced by the process drama leader. In process drama, participants may not necessarily become "experts" on a topic, but learn certain skills or lessons as they engage in making meaning out of a narrative together. Participants continually improvise the story as the tensions of the drama unfold, and in this way,

members of the group are led to discover solutions to problems and learn in the process (Bowell & Heap, 2001; O'Neill, 1995; O'Neill & Lambert, 1994; Tarlington & Verriour, 1991).

While improvisation is at the heart of process drama, it must be carefully planned around following principles: theme, the learning area or object of the lesson; context, or particular setting/circumstances created by the drama; roles, or who the children and leader will be in the drama; frame, the point of view of the roles; sign, the artifacts, images or items used to bring meaning to the drama; and strategies, or various ways of guiding students into the drama (Bowell & Heap, 2001). With these guidelines for planning, process drama can be used by a variety of helping professionals, whether or not they have significant drama experience, and adapt to being "in role" in their work with children and adolescents (Bowell & Heap, 2001; Tarlington & Verriour, 1991).

An example of a process drama structure, "The Lost Valley", has been described by O'Neill and Lambert (1994). In this process drama, the theme of survival and resourcefulness is developed through the context of a primitive society in a lost valley. The role of the drama leader is that of head of the scientific institute, while the students take roles of volunteers for the experiment. Each student decides on a specific skill he/she can bring to the expedition. The frame, or point of view of the roles, is that of volunteers who agree to be part of an experiment recreating a primitive society. Thus, the students' point of view is somewhat distanced from the tribal members themselves. This distance provides some emotional distance for the students and allows them to analyze their roles with more objectivity. "Signs" used to bring meaning to the drama may include a map of the valley, tools, or a scrap of cloth left by previous expedition members. Strategies that drama leaders may use to guide students into the drama may include the creation of an expedition group photograph, in which students use body language to express their role and freeze in the position of a photograph. The group leader propels the drama forward with narrative, by describing, for example, the process of arriving in the valley. Group members may be led to hold meetings to discuss their

experiences on their first day in the valley, or meet in pairs to explore the surroundings. A “conflict” or problem is introduced at some point during this narrative, such as the discovery of a hostile tribe in the next valley. Together, the group members must discover a way to deal with this unexpected problem and come to a reasonable solution.

Rationale for Drama Activities as Social Competence Intervention

Why might one consider drama as a basis for social competence intervention? First, the essence of drama is social and involves contact, communication and the negotiation of meaning within a group context. As stated by O’Neill and Lambert (1994), “Within the safe framework of make-believe, individuals can see their ideas and suggestions accepted and used by the group. They can learn how to influence others; how to marshal effective arguments and present them appropriately; how to put themselves in other people’s shoes. They can try out roles and receive immediate feedback (p. 13).” It is grounded in a belief in discovery-in-this-moment, which is similar to Barkley’s (1997) statement of the need for intervention in the moment an interaction happens with children with executive function difficulties.

When one compares the skills targeted in creative drama and process drama work, one cannot ignore the similarity between these skills and the needs of children with nonverbal learning disabilities, autistic spectrum disorders, and ADHD. Creative drama can provide the opportunity to develop imagination, independent thinking and cooperation, build social awareness, take another’s perspective, promote a healthy release of emotion, and improve habits of speech. It emphasizes imagination, concentration, organization, self-expression, positive communication, creates an atmosphere of mutual trust and addresses the concepts of space and distance (McCaslin, 1990, Spolin, 1986). Bowell and Heap (2001) believe that process drama rests on the four following cornerstones. First, children have an innate predisposition to learn through dramatic play. Second, learning takes place most effectively when contextualized. Third, learners who have a sense of ownership about their learning are

more committed to it. Finally, human beings universally use drama to symbolically represent and comment upon life experience (see Figure 3). These cornerstones of process drama sound very similar to the research of psychologists Quill (1995) and Vygotsky (1967) which emphasizes the importance of imaginative play as a way to develop social perception, construct shared meaning and acquire social knowledge. Finally, the importance of pretending in the development of a child's theory of mind in preschool years has been stressed (Suddendorf, Fletcher-Flinn & Johnston, L., 1999). As previously discussed, research has indicated that theory of mind skills may be compromised in children with autistic spectrum disorders (Jolliffe & Baron-Cohen, 1999; Rutherford, Baron-Cohen & Wheelwright, 2002.

Empirical support for Drama-in-Education as Social Intervention

As early as 1979, Simeonsson, Monson and Blacher-Dixon emphasized that children should actively assume the roles of others and solve various social dilemmas in context. McCaslin (1981) explains that social growth is a goal of creative drama instruction, achieved through an understanding and acceptance of self followed by acceptance and sharing with others. Walsh (1992) cites evidence demonstrating the efficacy of drama activities for enhancing cognitive functioning, imagination, impulse control, social perspective-taking and peer relations (Saltz & Brodie, 1982; Walsh, Kosidoy & Swanson, 1991). In addition, he advocates the use of creative drama as a means to foster social skills development due to the opportunity to solve disagreements in context, receive peer feedback, and the fact that it is intrinsically motivating, requires concentration, controlled expression of emotion, focused attention, and interpersonal problem solving. Walsh's (1992) experience with a creative drama based social skills curriculum suggests it could be useful in strengthening peer relationships in prevention programs. He asserts that creative drama might be superior to other forms of social skills training which are often didactic, lack in imagination and minimize group dynamics. Recently there has been another surge of support for the use of drama as tool

to teach social competence. In fact, the University of Exeter's upcoming international conference on Researching Drama and Theatre in Education for April, 2005 is entitled "Drama as Social Intervention". Information about this conference can be found online at www.ex.ac.uk.drama.

Much qualitative evidence exists for the efficacy of creative drama activities as intervention for a variety of issues with children and adolescents, including: conflict resolution (McClure, Miller & Russo, 1992); increased self-awareness and insight (Stirtzinger & Robson, 1985); the use of the mirroring technique to foster family cohesion (Warner, 1996); drama imagery techniques used to facilitate socialization with juvenile delinquents (Count-Van Manen, 1991); the decrease of unfocused and destructive behavior (Bernstein, 1985), promotion of speech and language learning (Bush, 1978), use with autistic children (Warger, 1984), treatment of emotionally disturbed children (Lewis, 1974) and the facilitation of peer interaction (Barsky & Mozenter, 1976). According to Barsky and Mozenter (1976), the Pittsburgh Child Guidance Center had been using creative drama techniques for years at the time of publication, though clinical literature describing it is sparse. A few quantitative studies were also located demonstrating the efficacy of creative drama as a means to improve social interaction. Creative drama based intervention was associated with improvements in voice qualities of children at the $p < .01$ level of statistical significance, particularly in paralanguage (pitch, stress, tone) and kinesics (communicative gestures) (Stewig, 1972). A multimodal drama based program showed improvement in adolescent interpersonal skills as measured by a significant difference in interpersonal cognitive problem solving post-intervention (Johnston, Healey & Tracey, 1985). Freeman, Sullivan and Fulton (2003) recently published a study using an experimental group design testing the effects of a creative drama program on elementary students' self concept, social skills and problem behavior. Though no significant effects were found, the authors believe this to be due to the fact that the majority of students' self concept

and social skills scores in both treatment and control group were average to above average prior to intervention.

Drama Research with Children with Learning Disabilities

Creative drama has been used widely with a variety of special populations including those with learning and developmental disabilities (Chesner, 1995; McCaslin, 1990). According to Grady (2000), drama emphasizes an understanding of and respect for each others' differences. In this way, it may be well-suited to the learning disabled and developmentally delayed populations. Although very few studies using drama techniques with learning disabled children were found, many of those located had positive results. Research by Buege (1993) showed that 32 weekly creative drama sessions were effective in significantly improving the self-concepts of emotionally disturbed students, with an effect size of 12.57. Another study (de la Cruz, Ming-Gon, Lian and Morreau, 1998) using creative drama techniques with children who have learning disabilities indicated significant pre-post gains in social skills scores as measured by the Walker-McConnell Scale of Social Competence and the Scale of Specific Social and Oral Language Skills. Since neither of the above studies used a control or comparison group, the methodology can be described as quasi-experimental, and results must be interpreted with caution. Despite their limitations, these studies provide preliminary evidence that creative drama techniques are effective in improving the social skills in learning disabled children.

Several recent scholars in Great Britain have emphasized the potential that drama activities have for specifically helping children with autistic spectrum disorders (Peter, 2003; Sherratt & Peter, 2002). They argue that drama can help build social competence by teaching children to better understand social narratives that arise from interaction with others. Specifically, Sherratt and Peter (2002) have developed a structured, developmental approach called play-drama intervention (PDI) which focuses on supporting the ability of children on the autistic spectrum to make believe and share

meaning with peers. They assert that allowing children on the autistic spectrum to engage in playful and imaginative activity will strengthen the aspects of brain function necessary for more flexible thinking and sensitivity to others.

Only one recent study was located that used creative drama techniques with children on the autistic spectrum (Doyle, 2001). This study used the Interplay model, a program that uses a metaphor of acting skills to improve social competence. Treatment effects were measured using a single subject design assessing four domains, including play skills, social skills, theory of mind and communication skills. Though only minor gains were noted, qualitative reports from parents and participants were positive. The researchers recommend that future studies include small group size, increased parent involvement, and a high child-facilitator ratio.

In summary, creative and process drama techniques have a rich history of use with a variety of populations in an educational context. Specifically, drama techniques appear to have great potential for addressing the needs of children with deficits in social perception. Currently, few quantitative experimental studies exist measuring the effect of drama on social outcomes. Future research is needed to explore the potential that creative and process drama have for addressing the needs of children with social competence deficits.

Chapter 3: RESEARCH STUDY

Statement of Purpose

The purpose of this study was to investigate the effects of an intervention based on creative drama developed to address the social competence needs of children and adolescents with autistic spectrum disorders and nonverbal learning disabilities. As research has shown, there is a great need for proactive interventions to facilitate peer acceptance in children in different diagnostic categories. Children with NVLD and autistic spectrum disorders show evidence of deficits in social perception and perspective-taking which affects their ability to interact successfully with others (Baron-Cohen, Leske & Frith, 1985; Klin, Volkmar & Sparrow, 2000; Rourke, 1989; Semrud-Clikeman & Hynd, 1990). Though some interventions are beginning to target the needs of these specific populations, most traditional social skills interventions are not designed to address the perceptual and integrative deficits in a naturalistic context (Gresham, 1997; Teeter & Semrud-Clikeman, 1997). As a result, most social skills intervention programs have failed to generalize skills across time and environment (Beelman, Pflingston & Losel, Forness & Kavale, 1996; Hughes & Sullivan, 1988). An examination of creative drama and/or process drama reveals that these types of activities may be an effective method of intervention for populations with deficits in social perception (Buege, 1993; Peter, 2003; Walsh, 1992). Although creative drama work has been used for prevention and intervention for a variety of psychological difficulties, clinical literature describing its use with learning and developmentally disabled populations is sparse. Accordingly, the Social Competence Intervention Program was developed to address the perceptual deficits of children with nonverbal learning disabilities and autistic spectrum disorders. Anecdotal evidence from pilot studies of this program has indicated positive feedback from both children and parents (Glass, Guli, & Semrud-Clikeman, 2000).

This study expands previous research in several ways. First, this study departs from traditional social skills training and uses creative and process drama activities to address social perception deficits in children. Next, this study increases the experimental rigor of previous drama-based intervention studies by including a control group to minimize threats to internal validity. Third, children with conduct disorder or oppositionality were excluded from the study, because research suggests that their social difficulties have a different etiology (Voeller, 1994). Finally, this study adopted both quantitative and qualitative research procedures, in order to acquire a more thorough understanding of the intervention's effects.

Quantitative Research Questions and Hypotheses

The following questions and hypotheses were developed to test the efficacy of the Social Competence Intervention Program:

Question 1: At post-treatment, will children who participate in intervention (Group 1) score higher on a measure asking them to perceive emotions from facial expressions than children who do not participate in the clinical control group (Group 2)?

Hypothesis 1. Post-treatment, Group 1 will achieve significantly fewer mean error scores on the child faces subtest of the DANVA2 than Group 2.

Question 2: At post-treatment, will children who participate in intervention (Group 1) score higher on a measure asking them to perceive emotions from vocal expression than children who do not participate in the clinical control group (Group 2)?

Hypothesis 2. Post-treatment, Group 1 will achieve significantly fewer mean error scores on the child paralanguage subtest of the DANVA2 than Group 2.

Question 3: At post-treatment, will parents of intervention participants (Group 1) report lower mean scores on parent ratings of withdrawal symptoms than children who do not participate in intervention (Group 2)?

Hypothesis 3. Post-treatment, parents of participants in Group 1 will report significantly lower mean scores on the Withdrawal scale of the Behavioral Assessment System for Children (BASC) than Group 2 parents.

Question 4: At post-treatment, will parents of intervention participants (Group 1) report higher mean scores on parent ratings of social skills than children in the clinical control group (Group 2)?

Hypothesis 4. Post-treatment, parents of participants in Group 1 will report significantly higher mean scores on the Social Skills scale of the Behavioral Assessment System for Children (BASC) than parents of Group 2.

Exploratory Question: At post-treatment, will peer interactions in the natural setting improve for intervention participants (Group 1) relative to children in the clinical control group (Group 2)?

Exploratory Hypothesis 1. Post-treatment, Group 1 will be observed to have a significantly higher proportion of positive interactions than Group 2.

Exploratory Hypothesis 2. Post-treatment, Group 1 will be observed to have a significantly less proportion of solitary behaviors than Group 2.

Qualitative Research Questions

Qualitative Research Question 1: Did the intervention improve participants' social competence?

Qualitative Research Question 2: Was the intervention more effective for a particular population?

Qualitative Research Question 3: What were the reactions of the participants, parents and group leaders to the intervention?

Chapter 4: METHOD

The purpose of this study was to investigate the effects of the Social Competence Intervention Program, a group intervention based on drama for children with deficits in social perception. In this study, an intervention group was compared to a comparison group receiving usual services provided by school and community. Since this study blends two very discrete fields (neuropsychology and creative drama), fields which have traditionally analyzed data very differently, data were analyzed using a mix of quantitative and qualitative procedures, with the intent that each method informs the other. Several pre-and post-measures of social perception and social competence were used to measure treatment results. Additionally, qualitative data were gathered from participants, parents and intervention group leaders through interview and journaling. In the following methods section, quantitative and qualitative data analysis procedures will be presented separately. Integration of these results will be provided in the discussion.

Participants

Forty-one children, 8-14 years-old at the time of enrollment, participated in this study. The first 23 children meeting all inclusion and exclusion criteria were assigned to the treatment group on a first come, first serve basis. Five participants dropped the program early, leaving a total number of eighteen children in the treatment group. After the intervention was completed, a sample of 18 additional children meeting study criteria were recruited and placed in a comparison group. Participants of the clinical control group included children whose parents could not participate in treatment due to scheduling difficulties, children who were placed on a waitlist for treatment offered the following semester, and children who dropped the intervention after two or less sessions. Children in the comparison group received services as typically offered in the school or community, including individual therapy, summer camp, school social skill groups and medication. Groups were matched for age, gender and cognitive ability.

Inclusion and Exclusion Criteria

All children had overall intelligence in at least the low average range, as measured by a standard score greater than or equal to 85 on one or both subtests of either the Kaufman Brief Intelligence Test (K-BIT, Kaufman & Kaufman, 1990) or a pro-rated overall intelligence score from the Vocabulary and Block Design subtests of the Wechsler Intelligence Test for Children (WISC-III, Wechsler, 1991).

Participants also met at least one of the following criteria:

a) Previous diagnosis by a licensed psychologist of an autistic spectrum disorder (Asperger's Syndrome, Pervasive Developmental Disorder-NOS, High Functioning Autism) or a Nonverbal Learning Disability

b) Evidence of social competence and social perception difficulties as shown by meeting both of the following:

1) greater than or equal to 1.0 standard deviation below mean on parent or teacher Social Skills Ratings Scale (SSRS)

2) greater than or equal to 1.0 standard deviation below the mean score for their age on either the emotion *or* nonverbal cues score on the Child and Adolescent Social Perception (CASP, Magill-Evans, Koning, Cameron-Sadava & Manyk, 1996) measure of social perception.

Since the intervention was conducted in English, only first-language English speaking students were included in the study. Also, participants could not have an acquired neurological deficit (e.g. traumatic brain injury), history of head injury (loss of consciousness over five hours), specific neurological pathology (seizure disorder, brain tumor, Tourette's Syndrome), symptoms of a thought disorder (e.g., psychosis), or a previous diagnosis of either Oppositional Defiant Disorder or Conduct Disorder.

Children and adolescents meeting selection criteria were selected from the database of an ongoing study conducted by the School Psychology Program entitled, "Assessment of social competence in children with developmental disorders" under the

supervision of Principal investigator Margaret Semrud-Clikeman, Ph.D. Participants were referred to this study by parents in the Austin community and surrounding areas, personnel from the Austin Independent School District, and personnel of the Austin Neurological Clinic.

Participant demographic information is found in Table 1. As indicated in the table, 80% of the sample was male, and 20% female. Forty-five percent of participants had autistic spectrum disorders, while 77.5% of all participants had either a primary or secondary diagnosis of ADHD. Median age of participants was 8 years, 8 months; mean age was 10 years, 9 months. At least 52.5% participants were on one or more medications; this is believed to be an underestimate because data regarding medication usage was missing for several participants. Ninety-two percent of participants were Caucasian.

Table 1

Participant Demographic Data

Group	Gender	Primary Diagnosis	Ethnicity	ADHD[a]
Clinical	83.3 % M 16.7 % F	11.1% NVLD 61.1 % AS/HFA 27.8 % ADHD	83% Caucasian 17% Other	77.8%
Control	77.8% M 22.2% F	38.9% NVLD 38.9 % AS/HFA 22.2% ADHD	88% Caucasian 12% Hispanic	72.2%
Attrition	60% M 40% F	40% NVLD 60% ADHD	100% Caucasian	100%
Total Sample	80% M 20% F	NVLD 25% 45% AS/HFA 30% ADHD	92% Caucasian 8% Other	77.4%

Note. NVLD = Nonverbal Learning Disability, ADHD = Attention Deficit Hyperactivity Disorder, AS = Asperger's Syndrome, HFA = High Functioning Autism. AS and HFA are grouped together because both are considered to be on the autistic spectrum.

[a] This column refers to how many participants in the group had either a primary or comorbid diagnosis of ADHD

Parent Participants

Parent participation was limited to completion of pre- and post- measures. In all but three cases, mothers completed pre- and post- measures. Two fathers participated in post-intervention interviews. Only 14% of families were single-parent or step-parent homes. Seventy-five percent of participating families were of middle to upper middle class socio-economic status.

Group Leaders

Group leaders consisted of eight doctoral students in School Psychology (six women, two men) familiar with the research project and the nature of social competence deficits in the target population.

Measures

Structured Interview for the Diagnosis of Affective Disorders for Children (SIDAC)

The SIDAC is a diagnostic interview based on DSM-IV criteria used to screen children for affective disorders. A shortened version of the SIDAC was administered to one parent or guardian of the participant by a trained member of the research team. Data from this interview was used as a screener for the presence of ADHD so that the intervention and clinical control groups could be matched on this variable. Additionally, information about medication usage and participant demographics was gathered from this measure.

Child and Adolescent Social Perception Measure

The CASP (CASP, Magill-Evans, Koning, Cameron-Sadava & Manyk, 1996) was designed to provide a standardized measure of a child's ability to read and interpret social cues in a natural context through videotaped social scenarios. The verbal content has been masked through an audio filtering procedure so that a child relies on nonverbal

cues to interpret each scene. The CASP consists of 10 scenes lasting 19-40 seconds each, including characters of a variety of ages in a variety of settings. Administration consists of the child watching each scene and verbally answering a series of standard questions asking what emotions the actors were portraying and what nonverbal cues indicated these emotions.

The CASP provides two scores: a Total Emotion Score (TES) and a Total Cues score (TCS). The emotion score is based on identification of each character's feelings in each scene and is seen as the primary indicator of social perception ability. The nonverbal cues score indicates the child's attention to specific nonverbal cues. A high correlation between these two scores (.88) was found in the normative sample. The child's responses are scored as accurate (2 points), partially correct (1 point) or incorrect (0 points). Norms are provided for ages 6 through 15. The CASP was standardized on a sample of 212 children drawn from seven schools (inner city, private and public) in Canada. 13.8 % of the sample was non-Caucasian, representing the demographics of the population. Standardized scores are represented as *z*-scores, ranging from –3.00 to +3.00. The 10 scenes used in the measure were selected from 77 scenes developed by clinical experts in child and adolescent psychiatry. Scenes were pilot tested and subjected to inter-rater reliability calculations, and subsequently reduced to the ten scenes in the current CASP. Internal consistency reliability is .88 for the Total Emotion Score (TES) and .91 for the Total Nonverbal Cues Score. Test-retest reliabilities are .83 and .87.

Social Skills Rating Scales (SSRS): Parent Form & Teacher Form

The SSRS (Gresham & Elliot, 1990) is a standardized behavioral checklist which asks the parent and teacher to rate behaviors related to social skills. The measure was developed to determine a student's social skills by focusing on pro-social behaviors that can be targeted for intervention in the educational setting. The SSRS measures three domains: social skills, problem behaviors, and academic competence.

The Parent Form rates the frequency of social skills in five areas: Cooperation, Assertion, Responsibility, Empathy and Self-Control. The teacher form is similar to the Parent Form but includes additional ratings in the domain of Academic Competence. Since problem behaviors and academic competence were not the focus of this study, this study only used the social skills domain for a measure of inclusion criteria.

The SSRS was standardized on a national sample of 4,170 children between grades 3-12 from both mainstreamed and special education classrooms. An attempt was made to approximate the national demographics on variables of race, ethnic status, geographic region and community size. The SSRS has adequate reliability and validity statistics, as follows. For the Parent Social skills subscale, internal consistency ranges from .65-.90; for the teacher subscale, .86-.94; test-retest reliability parent subscale range from .77-.87; teacher test-retest .75-.88. Content, social, criterion rated and construct validity are reported in detail and have demonstrated adequacy according to procedures described in the manual.

Diagnostic Analysis of Nonverbal Accuracy 2 (DANVA2)

Social perception decoding skills pre and post intervention were assessed through the DANVA2 (Nowicki & Carton, 1992). The DANVA2 was designed to provide a measure of the ability to receive nonverbal information through facial expression and prosodic cues (described here as paralanguage). It consists of four subtests: Adult Faces 2, Child Faces 2, Adult Paralanguage 2 and Child Paralanguage 2. Although both adult and child subtests have been used successfully with both adults and children, the current study utilized only the two child subtests since they provide sufficient evidence of social perception decoding skills. The DANVA2 was administered through a Multimedia System on CD-ROM Disk.

The Child Faces subtest is made up of a series of 24 photographs of children. Within each subtest there are six photographs for each of four basic emotions: happy, sad, angry and fearful. There are three photographs determined to be of a “high”

intensity and three of a “low” intensity for each emotion. The Child Paralanguage portion is made up of 24 repetitions of the same neutral sentence. Within each subtest there are six repetitions for each emotion: happy, sad, angry and fearful, as well as three repetitions of “high” and “low” emotion intensity. Participants are asked to choose whether they believe the photos and sentences are happy, sad, angry or fearful. The DANVA2 provides subtest error scores (out of 24 trials) for separate emotions by intensities. Error profile tables can be computed for each subtest. The most recent means and standard deviations of error scores are available for children aged 4-18. However, the authors state that more data is needed to approximate norms, and that these means and standard deviations should only be taken as a rough estimate of normative data. At the time of this writing, DANVA2 personnel were contacted to determine if there were updated norms. As of Fall 2004, these were not available.

The DANVA2-CF items were constructed by showing children between the ages of 6 and 12 vignettes of happy, sad, angry and fearful themes and asking them to respond with appropriate facial expressions. The DANVA2-CP items were constructed by professional child actors (age 9) in a sound studio. The same neutral sentence was said to reflect the appropriate emotion in response to vignettes designed to elicit happy, sad, angry and fearful feelings. An equal number of male and female voices for each of the four high and low intensity trials appear. The new subtests were created because the original DANVA subtests, although used successfully in over 50 studies, did not include stimuli differing in intensity and therefore its ability to discriminate among emotions was suspect.

For the Child Faces subtest, convergent validity reportedly ranges from .54 to .58 when correlated with the original DANVA. Cronbach coefficient alphas range from .70 to .76. Test-retest reliabilities range from .74 to .84. Internal consistency ranges from .69 to .81. For the child paralanguage subtest, internal consistency ranges from .74 to .76. Test-retest reliability was found to be .88. Convergent validity, when compared with original DANVA, ranges from .48 to .54. Both subtests show evidence

of discriminant validity (by not related to IQ) and criteria validity (by being related to lower social competence in children). Each subtest of the DANVA2 was constructed independently. Stimuli were selected on the basis of a preset number of independent judges agreeing on the identification of a particular emotion. Judgments were made by individuals of different ages to assure that the items impacted similarly across age. A high percentage of inter-judge agreement was used for item selection.

Behavioral Assessment System for Children (BASC): Parent Report

The BASC (Reynolds & Kamphaus, 1992) is a questionnaire designed to help diagnose emotional and behavioral disorders in children. The scores are grouped into four composites: externalizing problems (hyperactivity, aggression, and conduct problems), internalizing problems (anxiety, depression and somatization), a behavioral symptoms index (typical responses, withdrawal and attention), and adaptive skills (social skills and leadership). There are preschool, school-age and adolescent forms.

Although parents completed all scales within the measure at pre- and post-intervention, in this study, only three scales believed to best reflect social competence as defined by this study were examined: the Withdrawal, Social Skills and Adaptability scales. The Withdrawal scale includes items such as: “has trouble making new friends,” “is chosen last by other children for games,” “avoids other children/adolescents,” and “plays alone.” The Social Skills scale includes items such as “says please and thank you,” and “begins conversations appropriately.” The Adaptability Scale includes items including “tries new things” and is a ‘good sport’. Taken together, these three scales appear to encompass the variety of skills necessary for social competence.

Reliability data is as follows for general norm samples: Coefficient alpha ranged from .71 - .89 on the three scales. Test-retest reliability ranged from .55 - .91 while inter-rater reliability ranged from .48 - 67. Content, social, criterion rated and construct validity are reported in detail and have demonstrated adequacy according the manual.

Direct Behavioral Observations

Direct behavioral observations were used to supplement the data gathered from the other measures to assess social competence. For approximately 50% of the participants at pre- and post- treatment, observations were carried out for one 20-minute interval by one of three graduate student observers trained by the author. Although it was originally intended that all participants be observed, difficulties arose in recruiting and training observers that made this impossible. As a result, observations were limited to a sample of the participants. An analysis of observations was made an exploratory question instead of a hypothesis due to small sample size.

Observer Training. Prior to the study, observers were trained in observation procedure and definition of the variables to be observed. As part of training, observers watched two clips of 15-minute videotapes with children interacting with each other to practice coding. These training videotapes were clips taken from two popular movies in which early adolescent child actors interacted with each other in variety of settings. When differences of opinion arose during coding, these were discussed until common agreement was reached on how to code an interaction. After this discussion, additional guidelines for observation were created for observations. Observation forms and additional guidelines are provided in Appendix C.

Variable Recording. Partial interval recording was chosen for the recording format because this was recommended when the variables to be observed are considered to be low-frequency data (Jacobs, 1993). In partial interval recording, a behavior is recorded as present in an interval if it is observed occurring for any portion of a specific time interval (Jacobs, 1993). The percentage of intervals in which the following variables are observed was recorded: positive social interaction, negative social interaction, solitary behavior, or neutral behavior. These variables were defined as follows:

Positive social interaction: For the purposes of this study, a positive social interaction was operationally defined as a communicative exchange, verbal or nonverbal, between the observed student and peers during which the student and peers demonstrated one or more of the following behaviors: playing cooperatively, sharing, conversing pleasantly (as evidenced by smiling, speaking with respect, taking turns when speaking, etc.) socially appropriate exchanges such as greetings, saying please and thank you, etc. In general, any social interaction that reflected that the student is accepted by and accepts his/her peers was coded in this category.

Negative social interaction: For the purposes of this study, a negative social interaction was operationally defined as a communicative exchange, verbal or nonverbal, between the observed student and peers during which the student and peers demonstrated one or more of the following behaviors: teasing, insulting, an exchange of comments appearing to distance or isolate the student or his/her peers, frowning, lewd hand gestures, physically aggressive behaviors (such as hitting, shoving, kicking, etc.), bossy behaviors, barging in and disrupting another's play, etc. This category may also an exchange of comments indicating social rejection; for example, when a participant's wish to participate in an activity is rejected by another child. In general, any social interaction that reflects that the student is not accepted by his/her peers and/or has difficulty accepting his/her peers should be coded in this category.

Solitary: For the purposes of this study, a solitary behavior refers to a behavior performed in isolation from peers, whether intentional or unintentional. For example, a child may isolate him or herself on the playground and wish to play alone, or a child may want to play with peers but be shunned by them, or talk to another child and be ignored. Any of these behaviors or interactions was coded as solitary.

Neutral: For the purposes of this study, neutral behaviors refer to behaviors that cannot be coded in any one of the above categories. Examples of neutral behaviors are: behaviors instructed by an adult or demanded by the setting (bouncing a basketball to someone in P.E. class, or saying 'thank you' when instructed by a teacher);

interactions resulting from accidental behaviors (stepping on a peer's foot by accident); or personal habits or behaviors that result in a negative reaction from peers (picking one's nose). Personal habits or behaviors that result in negative reaction from peers, however, should be noted in narrative form on the data sheet. Also, any behaviors that might be indicative of difficulties with socio-emotional functioning (motor or vocal tics, self stimulating behaviors, etc.) should be noted in narrative form.

Establishment of Inter-rater Reliability. After training, observers coded a 30-minute test tape, created by the primary researcher, to establish inter-rater reliability. The videotape portrayed non-actor children (ages 8-11) interacting naturally on a Saturday afternoon. The first portion of the tape consisted of three children playing cards together; the second portion of the tape consisted of six children conversing while exploring a neighborhood park trail. According to Jacobs (1993), coding should ideally reach an inter-rater reliability coefficient of at least .80.

Two separate trials of observation training were conducted to reach an adequate inter-rater reliability coefficient. In the first trial, several volunteer observers arrived late to the training session and thus missed important coding guidelines. As a result, inter-rater reliability was low. In the second training session, three graduate students, including the primary researcher, trained and coded a test tape a second time, reaching higher reliability coefficients. Only members of the second training session were allowed to conduct pre- and post-observations.

Inter-rater reliability was calculated by the simple reliability method, defined as dividing the total number of intervals that observers agreed about the presence or absence of the target behavior by the total number of intervals in the session multiplied by 100 (Jacobs, 1993). Using this formula, observers from the second training session obtained 91% agreement for positive interactions (coefficient alpha = .83) and 86% agreement for solitary behaviors (coefficient alpha = .74).

Procedures

Approval by Human Subjects Committee

This study complied with the standards of research outlined by the American Psychological Association and the University of Texas at Austin. Informed assent was obtained from all parents and children through consent forms sent home outlining assessment and intervention procedures as well as benefits and risk of participation (see Appendix D).

Data collection

Quantitative data collection. For both treatment and clinical control groups, participants and parents completed the DANVA2 and BASC at the University of Texas at Austin by a doctoral student in School Psychology trained in administration of the measures. If the measures were given more than six months prior to intervention, they were re-administered at the start of intervention to reflect a current measure of functioning. Approximately 8-12 weeks post-intervention, children and parents were re-administered the DANVA2 and BASC. For five participants, the BASC and DANVA2 post-measures were administered either in the home or an alternative setting due to transportation difficulties. Parents were asked that the same parent complete the post-BASC as before to ensure test-retest reliability. All settings were quiet with the absence of distracters.

As with the BASC and DANVA2 measures, behavioral observations were conducted pre and post intervention for the treatment group and before and after an 8-12 week gap for the clinical control group. Observations were conducted using an audiotape created by the primary researcher. The audiotape consisted of 40 intervals of 20 seconds each for observations separated by 10-second intervals for recording data.

The beginning of each interval was voice cued with the words “observe” and “record”. Observers used a walkman with headphones to listen to the tape. Observation data were recorded on a form designed specifically for this study to reflect variables of interest (Appendix C). Observations took place during recess, lunch or a cooperative activity period at the child’s school. Observers were granted permission to enter the school from school personnel with the study consent form signed by the child’s parent prior to observation. Parents were asked not to tell their children that they would be observed. Specific observation contexts were described in detail on the recording form to ensure that the child was observed post-treatment in the same context as pre-treatment. Observers were instructed to stand at a reasonable distance from the child being observed so that the child would not be aware that they were the reason for the observer’s presence. Because of this distance, it was not always possible to hear the exact nature of conversation between the child and peers. Observers were asked to use their best judgment based on nonverbal cues to determine the nature of an interaction.

Qualitative data collection. Because I acted as group leader as well as data collector, my role in the study can be described as complete-member-researcher (Adler & Adler, 1994). To minimize the risk of subjective experience biasing the results of observation and analysis of data, this study adopted a triangulation approach, defined by the gathering of data from a variety of sources and checking for consistency across these sources (Mertens, 1998). The intervention was examined qualitatively across three dimensions: participant, group leader and parent experience. Qualitative data were collected by the following methods:

a) Parent Interview: Post-intervention, 15 parents of intervention participants were interviewed about their own and their child’s experience in the project by the author in a briefsemi -structured interview (see Appendix E). Several of

these questions were piloted on former intervention participants in the form of a client satisfaction questionnaire.

b) Child Interview: Post-intervention, all 18 child participants who completed the intervention were interviewed about their experience by the author in a semi-structured interview (see Appendix E). Several of these questions were piloted on intervention participants on the last day of the pilot study.

c) Group leader journals: During intervention, group leaders were instructed to keep weekly journals. Specifically, they were asked to note how each session did or did not meet its objectives, comment upon changes they observed or did not observe in the children, and comment upon their own experience of the process leading intervention groups.

Interviews were semi-structured and conducted in private office space either at the University of Texas at Austin or at the Odyssey School. It was originally intended that the parents would be interviewed by a member of the research team not directly involved in the intervention so that subjectivity would be minimized. Unfortunately, this was not realistically possible due to limited resources. Thus, all interviews were conducted by the author. Parent interviews varied in length between 20-45 minutes while child interviews ranged from 5-15 minutes. All interviews were audio-taped with signed consent (see Appendix F) and later transcribed for analysis by a professional transcriber who regularly transcribes psychological reports for a child and family guidance center in Dallas, TX. The interview transcripts totaled approximately 95 single-spaced pages, with a space between interviewer and interviewee statements. Parent interviews averaged 4 pages each and child interviews averaged 2.5 pages each. Five group leaders completed typed journals of their experience, totaling 28.5 single spaced pages and averaging a little over 5 pages each.

Social Competence Intervention Program Pilot Studies

An earlier version of The Social Competence Intervention Program was piloted twice with positive response from participants and parents at the University of Texas at Austin (Glass, Guli & Semrud-Clikeman, 2000; Guli & Semrud-Clikeman, 2002). The pilot interventions consisted of 8 sessions held once a week for two and one-half to three hours. Seven Caucasian children (2 girls, 5 boys) aged 11-14 participated in the first pilot. Diagnoses included NVLD, ADHD and Asperger's Syndrome. Four group leaders (three male, one female) facilitated. Post-intervention, all parents were asked to give informal feedback about their experience. Parents noted that their children appeared to enjoy the groups; one parent noted that her child appeared to be more aware of his own and others' emotions. Parents also commented that the safety of the group discussions was a positive feature, as was the children watching themselves interact on videotape. During the groups, it was observed that several of the children made friends and engaged in successful social interactions.

Since many younger children were interested in participating in the second pilot, two groups of different ages were created (8-11, 12-14) to minimize discomfort for the older children. The younger group consisted of 6 children (2 female, 4 male); diagnosed with ADHD, NVLD, and Asperger's Syndrome. Several children had comorbid diagnoses of depression or anxiety disorder. Four female group leaders facilitated. The older group consisted of all boys, diagnosed with similar difficulties, including comorbid Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). Three group leaders facilitated. Groups were held on a Saturday afternoon. While the older group was held in a classroom, the younger was in a smaller room traditionally used for family therapy. Post-intervention, parents completed a short client satisfaction questionnaire. The majority of parent responses were positive. Parents reported that

they would like the intervention to be longer, and that their children enjoyed coming to group. For many children, this was their first positive peer social experience. Group leader feedback, however, noted that behavior management was a problem in both groups. Based on these pilot observations, the program manual and intervention structure were revised for the current study. Changes included: expanding the intervention from 8 to 16 sessions, specifying inclusion and exclusionary criteria to make the participant population more homogeneous, and adding process drama content for several intervention sessions to further engage the children in activities. Additionally, plans were made to train group leaders in creative drama techniques and behavior management strategies.

Current Intervention Content and Procedures

The Social Competence Intervention Program is a 16-session intervention developed from creative and process drama activities, modified for children with nonverbal learning disabilities and autistic spectrum disorders. The intervention follows an approach based on Luria's concept of direct retraining in order to reorganize brain function (Semrud-Clikeman et al., 1999). It attempts to retrain participants in the fundamentals of social perception and then build on this training to achieve a more general level of social competence. It is hoped that this intervention breaks the negative chain of social interactions that these children frequently experience. The program's goals were to improve participants' perception of nonverbal cues in social interaction and to improve social competence in natural setting as measured by positive peer interactions and parent ratings.

The Social Competence Intervention Program (SCIP) addressed deficits in nonverbal communication through the use and modification of creative drama activities and meta-cognitive discussion among group members. Three stages of intervention paralleled the steps of the social perception model previously discussed (input, integration and output). Sessions 1-7 targeted input, and focused on the following

topics: establishing group identity, emotional knowledge, focusing attention, interpreting facial expressions and body language, interpreting vocal cues, putting cues together and what to do when nonverbal cues don't match. Sessions 8-13 were designed to aid in the integration and interpretation process. These sessions included activities that focused on taking others' point of view and interpreting several nonverbal modalities within a familiar social context. To facilitate this process, participants engaged in improvised process dramas with group leaders, during which they took on roles and explore the various outcomes of social interactions. During certain improvisations, participants were guided to break down a complex social interaction into sequential parts, discuss the emotions present and act out a variety of possible responses. Finally, sessions 14-16 comprised output, focusing on techniques to handle teasing and resolve conflict. The content of these later sessions was similar to the problem solving component of many traditional social skills training programs, such as that developed by Sheridan (1995). Organization of the activities was structured on several dimensions. The initial focus was on the children's own experience of emotion and social interaction followed by the perception of interactions with others. Emotions discussed progress from general, more common emotions to more subtle, complex emotions. The activities began with static stimuli and progressed to real time. An outline of the manual is provided in Appendix F.

Content of the manual was derived and modified from various sources, including collections of drama activities and drama units for children (Spolin, 1986; Allen, 1977; Neelands & Goode, 2000; Grady, 1995; Grady, 2001; Cresci, 1989; McCurry, 1989; Zich, 1986); process drama structures (O'Neill & Lambert, 1994); dramatherapy for people with learning disabilities (Chesner, 1995); cooperative games (New Games Foundation, 1981); and suggestions for teaching social skills to children with nonverbal learning disabilities (Thompson, 1997; Whitney, 2002) and Asperger's Syndrome (Bashe & Kirby, 2002).

Each session's content followed a structured format beginning with a warm-up activity, followed by a review of a home challenge assignment and journal sharing, discussion about the session's topic, activities, and wrap-up discussion to process the group experience. At every opportunity, peer feedback was encouraged throughout activities and interactions. When interpersonal conflicts or unexpected events arose, group leaders were encouraged to be flexible and address participant needs in the moment. Thus, although the intervention was manualized, the format was flexible enough to address the individual needs of participants.

Group leader training

Group leaders were trained in six 1-hour sessions during the month prior to intervention covering leader responsibilities, behavior management techniques, creative drama and process drama techniques and manual review. As behavior management training, cooperative discipline (Albert, 1996) techniques were reviewed and discussed. Specifically, the cooperative discipline approach targets four goals of misbehavior and provides strategies to deal with each. An outline of topics covered in group leader training is provided in Appendix G.

Treatment conditions

The current intervention was run twice, once in fall 2002 and once in spring 2003. Group was held for 1.5 hours two afternoons after the school day each week for eight weeks. Fifteen children signed up for the intervention in fall 2002. Eight children were placed in a younger subgroup (8-10) with four leaders (3 female, 1 male) or an older subgroup (11-14) with three female group leaders. Four children ended participation after two weeks. A 14-year-old girl dropped the program because she felt the other children in the group were too young, an 11-year-old girl dropped due to scheduling difficulties, and two 11-year-old boys drpped due to transportation

difficulties. The resulting leader-participant ratio was 1:2 for the younger subgroup and 1:1 for the older subgroup.

In spring 2003, seven boys aged 9-14 were recruited for the intervention. Since a majority of these children attended the Odyssey School, a charter school in Austin, TX, the intervention was held in a large room at this location. Since there were only seven participants, they were kept together and not split into subgroups based on ages. One 13- year-old boy dropped out after several weeks because due to discomfort with his younger brother being in the group. Three leaders facilitated, resulting in a leader-participant ratio of 1:2. Due to difficulties in scheduling in theSpring , the 16-week intervention was abbreviated to 12 weeks. Several sessions were combined to ensure that all material was still covered. Table 2 summarizes the size and location of treatment subgroups after attrition.

Table 2

Subgroup makeup after attrition

Subgroup	Age	Leaders	Space	Ratio[a]
Fall 2002	8-10	4 female, 1 male	UT meeting room	1:2
Fall 2002	11-14	3 female	UT classroom	1:1.
Spring 2003	9-14	3 female, 1 male	Odyssey School	1:2

Note. UT = University of Texas at Austin.

[a]Leader-participant ratio.

Although parent communication was not a main component of this intervention, parents were given an overview of intervention objectives, target goals and detailed schedule on the first day of the intervention. Parents were asked to encourage their children to complete home challenges after each session; in a few cases, these 'challenges' involved parent participation. Also, parents were asked to keep group

leaders notified if there were changes in participants' medication usage. When there were changes, these were noted.

Procedures to ensure Treatment Fidelity

All group leaders were trained in manual content. During intervention, one hour weekly meetings with group leaders were held, during which they discussed whether or not the week's sessions met participant objectives. In addition, group leaders used meetings to process interpersonal issues when they arose. Group leaders were instructed to journal after intervention sessions to help them process the session and note the behavior of individual group participants. Group leaders reviewed and practiced the following session's activities when necessary. When activities varied from the manual content, this was noted in leader journals. Approximately 50% of sessions were videotaped.

Data Analysis Procedures

Preliminary Analyses

Preliminary analyses (ANOVAs) and chi-square tests were completed on continuous (age, IQ) and categorical data (comorbid ADHD diagnosis, gender, autistic spectrum diagnosis), respectively, to determine whether the groups differed on descriptive and pre-intervention dependent measures. Significant differences were not expected since groups were matched on these variables as much as possible. In addition, descriptive data from five children who did not complete the intervention was analyzed and compared to the remaining participants to determine if there were any significant differences that would account for attrition.

Power Analysis

A power analysis was conducted using the parameters of alpha = .05 to determine the appropriate number of participants per group. Studies conducted by Ozonoff and Miller (1995) and Buege (1993) were used as a basis for choosing effect size to use in the power analysis. First, a program using creative drama as a component of social skills training was found to have a large effect size (12.57) on self-concept of emotionally disturbed students (Buege, 1993). In another study, Ozonoff and Miller (1995) examined the effectiveness of a social skills training program for adolescents with high functioning autism. Their program focused on teaching theory of mind using perspective-taking activities, role plays and videotaping. Group design was used, with 4-5 participants per cell. Effect size of the group difference on the theory of mind component at post-treatment testing was .64, classified as a medium to large effect. The effect sizes of the group difference in change scores (i.e., post-treatment minus pre-treatment) was 1.6, which is considered a large effect. Effect sizes in these studies were calculated with Cohen's *d* coefficient, which compares the magnitude of difference between two sample means.

Because this study is drama based and also uses perspective-taking activities, a large effect size (at least .80) was predicted for each of the outcome variables. A power analysis using this data determined that 20 participants per cell (n = 40) would be sufficient to yield power of .69. Due to attrition and missing data, final n for the study ranged from 15-18 participants per cell. Thus, power was lower than expected, and ranged from .55 to .59 for research questions.

Main Analyses

Quantitative. Means and standard deviations for the two groups at pre-treatment and post-treatment were calculated. For the main analysis, each hypothesis was analyzed using a separate 2 (Group—treatment and clinical control) x 2 (Time-pre

and post) repeated measures analysis of variance (ANOVA) where group was the independent variable and performance on the measure was the dependent variable.

Qualitative. Analysis of parent interviews, participant interviews and group leader journal data was conducted using grounded theory methodology (Strauss and Corbin, 1998). This method provides a structured way of analyzing large amounts of qualitative data in order to uncover broad underlying concepts. Three levels of coding are involved: open coding, axial coding, and selective coding. Coding begins by looking at the small details in the interviews, noting potential categories for analysis (open coding), and eventually relating these categories to each other at a conceptual level (axial coding). Eventually the concepts are brought together around a central theme and developed into a theoretical model that 'fits' the data (selective coding).

Since the current study utilized mixed-method analysis, grounded theory procedure was used to clarify the quantitative results rather than develop a new model. Because of this, coding stopped at the axial level. Coding and analysis process was not linear, but conducted in a circular fashion, as required by grounded theory procedure. As I conducted the interviews, I began to modify questions and even listen for different themes. For example, several parents I initially interviewed emphasized the importance of meeting other parents as they waited for their children together in the intervention. Although my interview plan did not originally include a question about parent-to-parent contact, I realized that this experience may have had an effect on the parent experience and so began to ask about it in future interviews. Similarly, after reading leader journals, I returned to the leaders with a few follow up questions to see if their experience paralleled what the parents and children were telling me.

My own emotional process during data collection and coding varied, depending on the type of data I gathered. Generally, data collection was a satisfying experience, since a majority of parents and children spoke positively about their experience. When certain parents or children were frustrated however, or did not have a positive reaction to the intervention, I experienced discomfort and felt the need to leave

them with some useful information or additional resources. As I reflected about my process, I realized that this discomfort may have prevented me from asking certain questions that may have provided useful information. Throughout the data collection and coding processes, however, I was aware of my potential to bias results due to my multiple roles as primary researcher of the project, data collector, intervention leader and group leader. Although there was no way to avoid this bias and my subjectivity, I tried to minimize the effect of this bias in several ways. First, I emphasized the importance of honesty when interviewees spoke about their experiences. Second, I ran my results and observations past others who were not directly involved in the study. Finally, I only discussed a finding if it appeared to be validated by all three sources: parents, group leaders and child participants.

Coding the qualitative data was a tremendous undertaking, due to its rich breadth and content. As I began the process outlined by Strauss and Corbin (1998), I generated a long list of potential categories and subcategories for analysis. Initially I was concerned about the need to find the "right" connections between categories. It soon became clear that there were in fact many different relationships that existed between these categories, and that many stories could be told from the data. To choose among these narratives, I asked myself the question: "Which story appears to be the most useful as a companion to the quantitative data and to inform future interventions?" Those themes that did not directly relate to the current study's focus were noted for future research, but not developed. For example, a theme that emerged from the data but was not directly related to research question was the sense of isolation experienced by parents of children with autistic spectrum disorders.

Chapter 5: QUANTITATIVE RESULTS

Results reported here are preliminary descriptive analyses of groups, tests of Hypotheses 1 through 4, tests of exploratory questions, and post-hoc analyses. First, one-way analyses of variance (ANOVA) and chi-square (X^2) analyses were used to examine differences in treatment and clinical control group makeup in gender, age, IQ, presence of ADHD, and autistic spectrum diagnosis. Next, repeated measures ANOVA analysis was used to determine whether the intervention significantly improved DANVA2 and BASC scores for the treatment group compared to the clinical control group. Post-hoc analyses were conducted to test for homogeneity of groups on severity of social perception deficits. Finally, repeated measures ANOVA analyses were used to test exploratory questions. Data analyses were conducted using SPSS, version 12.0.

Preliminary Analyses

Descriptive Analyses

Since age and IQ can contribute to differences in social perception, treatment and clinical control group were compared in order to determine whether there were differences between groups on these variables. T-tests did not reveal any significant differences between age between the groups, t (-1.66) , p = 0.252, with the mean age in the treatment group equaling 125 months (10 years, 4 months) and the mean age in the clinical control group equaling 135 months (11 years, 2 months). Likewise, groups did not differ significantly in IQ, t (.828), p = 0.414. To further explore group differences, chi square tests were conducted on the variables gender, ADHD diagnosis and autistic spectrum diagnosis. Chi square analyses (X^2) did not reveal any significant differences in gender [X^2(1, N = 36) = .177, p = .674], number of children who had ADHD [X^2(1, N = 35) = .008, p = .927] or autistic spectrum diagnosis [X^2(1, N = 35) = 2.33, p = .127] between the groups. The analysis looking at autistic spectrum diagnosis, however, is quite close to significance, reflecting the fact that treatment and control groups differ in

the number of children diagnosed with an autistic spectrum disorder. This difference, though not statistically significant, should be taken into consideration when interpreting results of main analyses. Results of these preliminary analyses and group descriptive data are presented in Tables 3, 4 and 5.

Table 3

Age and IQ by Group

Variable	Treatment			Control		
	M	*SD*	*n*	*M*	*SD*	*n*
Age	125.28	23.049	18	135.00	26.232	17
IQ	107.50	14.039	18	103.21	15.126	14

Note. Age = age in months.

Table 4

T-test for equality of means of age and IQ

	t	*df*	*p*	Mean diff	error diff
Age	-1.16	33	.252	-9.72	8.335
IQ	.828	30	.414	4.29	5.174

Note. Age = age in months.

Table 5.

Chi-Square analyses of categorical variables

Variable	X^2	*df*	*p*
Gender	.177	1	.674
Autspec	2.33	1	.127
ADHD	.008	1	.927

Note. Autspec = autistic spectrum diagnosis. ADHD = Attention Deficit Hyperactivity Disorder.

Analysis of Attrition Data

Data from those participants who dropped early were also analyzed to determine if there were any significant differences in IQ or age that might help to explain their attrition. T-tests did not reveal any significant differences in IQ (t = .482, p = .635) or for age (t = -1.655, p = .114) for participants who dropped out of the intervention early. The Levene Test for Equality of Variances was also conducted on these variables. Results of this test indicated a significant difference in age between those children who dropped the intervention early and those who did not (F = 4.486, p = .048). While the mean age of participants in the treatment group after attrition was 125.28, the mean age of those children who dropped the intervention was 148.00. Specifically, those children who dropped the program early were age 11 and above, compared to the larger treatment group, which included children aged 8-14.

Tests of Hypotheses

Test of Hypothesis 1

Hypothesis 1 predicted that the treatment group would achieve a significantly lower mean error score on the child faces subtest of the DANVA2 than the clinical control group on post-test. Results of the repeated measure ANOVA indicated that a Group x Time interaction approached, but did not reach significance, $F(1, 31) = 2.91$, p

= .098 (see Table 6). Mean error scores of participants in the treatment group decreased from 5.22 to 3.50 when compared with mean error scores of the clinical control group, which showed little change, decreasing from 2.93 pre-test to 2.47 post-test. This finding suggests that participants of the intervention group did, in fact, improve more than the clinical control group in their ability to perceive nonverbal facial expressions.

The calculation of effect size is becoming increasingly important in psychology research in an effort to quantitatively summarize research outcomes, particularly when using small sample size (Scruggs & Mastropieri, 1998). For this reason, an estimate of the strength of association between the outcome measure (post DANVA2 faces measure) and the independent variable (intervention) was calculated in the form of the effect size coefficient partial eta squared (η^2) for those analyses that approached significance. Statistically, repeated measures ANOVA indicates whether or not a relationship exists between the intervention and the outcome variables, while partial eta squared explains the strength of this association. According to Cohen (1977), partial eta squared (η^2) = .01 is classified as a small effect, .059 as a medium effect, and .138 or above as a large effect. Partial eta squared for the Group x Time interaction in Hypothesis 1 was .086, considered a medium effect according to Cohen's (1977) standards.

Table 6

Results of repeated measures ANOVA for DANVA2 faces subtest

Source	SS	*df*	MS	*F*	*p*	η^2
Time	19.601	1	19.601	8.848	.006	.222
Time x Group	6.449	1	6.449	2.911	.098	.086
Error (time x group)	68.672	31	2.215			

Note. Values enclosed in parentheses represent mean square errors.

Post-Hoc Analyses of Homogeneity of Groups. After data collection, it was observed that treatment and clinical control group performance may have differed quantitatively on DANVA2 pre-measures. For this reason, one-way analyses of variance (ANOVA) were conducted as post-hoc tests to determine if groups differed significantly on pre-measure scores. A significant difference was found on DANVA2 faces pre-scores for treatment and control group $F(1, 31) = 7.724$, $p = .009$. At pre-treatment, the clinical control group had significantly less errors on the faces subtest than the treatment group. No significant differences were found on pre-measure scores for the DANVA2 paralanguage measure, BASC subtests or behavioral observations. Although the group difference in DANVA2 faces pre scores is important to note, it does not change the significance of results, since repeated measures ANOVA controls for pre-measure differences in its analysis.

The difference in performance of treatment and clinical control groups on the pre-DANVA2 faces subtest is important to note because it may be indicative of an underlying difference in the severity of social perception ability in treatment and clinical control groups at pre-treatment. To determine if the groups did, in fact, differ in severity of social perception pre-treatment, post-hoc analyses were also conducted using data from the Child and Adolescent Social Perception Measure (CASP). Data were initially collected to determine whether or not participants met inclusion criteria for the study. Means for the total emotion scores (TES) and nonverbal cues scores (NCS) from the CASP are presented in Table 7.

Table 7

Mean Scores on the Child and Adolescent Measure of Social Perception (CASP)

Group	Score	N	*M*[a]	*SD*
Treatment	TES	17	-1.46	.796
	NCS	17	-1.81	1.00
Control	TES	11	-.727	.983
	NCS	11	-1.79	1.21

Note. TES = Total Emotion Score. NCS = Total Cues Score.

[a]Mean *z*-scores

Results of a one-way analysis of variance (ANOVA) conducted on these scores indicate that a significant difference exists between groups on the CASP Total Emotion Score (TES) at $F(1, 26) = 4.777$, $p = .038$. No significant difference was found for groups on the Nonverbal Cues Score, $F(1, 26) = .002$, $p = .967$. According to the CASP authors (CASP, Magill-Evans, Koning, Cameron-Sadava & Manyk, 1996) the Total Emotion Score should be used as the primary indicator of social perception ability. Thus, the results of this post-hoc analysis indicate that even prior to intervention, treatment and clinical control groups differed on severity of social perception skills, with the treatment group being more severe.

When considered within the context of group demographic makeup, this finding is not surprising. As preliminary chi square analyses indicated, the treatment group had more children diagnosed with an autistic spectrum disorder than would be by chance when compared to the clinical control group. Although this difference was not statistically significant, it may be clinically significant. Also, from a clinical standpoint, it is reasonable that those parents who volunteered for the intervention and actively

sought help would be the parents of children who had more severe social perception deficits.

Test of Hypothesis 2

Hypothesis 2 predicted that the treatment group would achieve a significantly lower mean error score on the child paralanguage subtest of the DANVA2 than the clinical control group on post-test. Results of the repeated measure ANOVA did not indicate that any significant difference existed in group performance, $F(1, 31) = .003$, $p = .958$. Thus, this finding failed to support Hypothesis 2. Results did indicate, however, a significant effect for Time, $F(1, 31) = 4.76$, $p = .037$, showing that both treatment and clinical control group mean error scores on the paralanguage task decreased slightly, as indicated in Table 8.

Table 8

DANVA2 Mean Error Scores[a]

	Treatment					Control				
	Pre	*SD*	Post	*SD*	*n*	Pre	*SD*	Post	*SD*	*n*
Faces	5.22	2.71	3.50	2.45	18	2.93	1.83	2.47	1.76	18
PL	7.28	3.44	6.39	2.38	15	6.27	2.60	5.33	2.28	15

Note. Faces = Faces subtest. PL = Paralanguage subtest.

[a]Raw scores out of a total of 24 items

Test of Hypothesis 3

Hypothesis 3 predicted that parents of treatment group participants would report lower mean scores on ratings of withdrawal symptoms than parents of children in the clinical control group on post-test. Results of the repeated measure ANOVA did not indicate any significant difference in mean scores, F (1, 31) = .037, $p = .849$. Thus, this

finding failed to support Hypothesis 3. Findings suggest that no difference between the treatment group parents or clinical control group parents was present on a measure of withdrawal symptoms.

Test of Hypothesis 4

Hypothesis 4 predicted that parents of treatment group participants would report higher mean scores on ratings of social skills symptoms than parents of children in the clinical control group on post-test. Results of the repeated measures ANOVA analysis did not indicate any significant difference in mean scores, F (1, 31) = .037, p = .849. Thus, this finding failed to support Hypothesis 4. As Table 9 shows, neither treatment group parents nor clinical control group parents saw differences in their children's social competence as measured by social skills items.

Table 9

Mean Parent Ratings on Behavioral Assessment Scale for Children (BASC)[a]

Scale	Treatment			Control		
	Pre	Post	*n*	Pre	Post	*n*
Withdrawal	65.18	62.94	17	61.13	59.69	16
Social Skills	35.29	35.12	17	34.14	36.25	16

[a]T- scores with a mean of 50 and a standard deviation of 15

Test of Exploratory Questions

Like main analyses, exploratory questions were tested with repeated measure ANOVA to determine whether there were any changes in observed social interactions with peers for a sample of children in treatment (n = 8) and clinical control group (n = 9). Exploratory Hypothesis 1 predicted that the solitary behaviors for the treatment

group, but not control group, would decrease post-intervention. As shown in Table 11, results indicated that a Group x Time interaction for solitary behaviors approached significance at F (1, 15) = 3.27, p = .09. For the treatment group, mean solitary behaviors decreased from 17.63 to 10.13, as compared with the clinical control group, which showed a slight increase in solitary behaviors post-test (see Table 10). Since this result approached significance, effect size was calculated. Calculation of effect size of the Group x Time interaction resulted in a partial eta squared coefficient of .179, considered a large effect according to Cohen (1977).

Table 10

Mean observed positive interactions and solitary behaviors[a]

	Treatment			Control		
	Pre	Post	*n*	Pre	Post	*n*
Solitary	17.63	10.13	8	19.89	21.11	9
Positive	12.25	14.75	8	12.56	6.89	9

[a]Mean is calculated from the frequency of observed behavior in a 20 minute interval

Table 11

Results of repeated measures ANOVA for solitary behaviors

Source	SS	*df*	*MS*	*F*	*p*	η^2
Time	83.458	1	83.458	1.697	.212	.102
Time x Group	161.105	1	161.105	3.275	.090	.179
Error	737.778	15	(49.185)			

Note. Values enclosed in parentheses represent mean square errors.

Exploratory Hypothesis 2 predicted that positive interactions would increase for the treatment group post-intervention but not for the clinical control group. Although the results of this analysis did not support this hypothesis, the Group x Time interaction for positive interactions approached significance at $F = (1, 15)$, $p = .065$. For the treatment group, mean positive interactions increased slightly from 12.25 to 14.75. In contrast, mean positive interactions for the clinical control group actually decreased post test, from 12.56 to 6.89. Since this effect approached significance, effect size was calculated. Calculation of effect size of the Group x Time interaction resulted in a partial eta squared coefficient of .209, considered a large effect according to Cohen (1977).

Table 12

Results of repeated measures ANOVA for positive interactions

Source	SS	*df*	*MS*	*F*	*p*	η^2
Time	21.235	1	21.235	.596	.452	.038
Time x Group	141.235	1	141.235	3.967	.065*	.209
Error	534.000	15	(35.600)			

Note. Values enclosed in parentheses represent mean square errors.

Results of the exploratory analysis provided some evidence that the treatment group reduced solitary behaviors and increased positive behaviors after participating in the intervention program. Figures 3 and 4 clearly illustrate the changes in behavioral observations. The fact that these results were found with a small sample size ($n = 8$; $n = 9$) makes the finding suggestive and with a larger sample effect size may be much greater. In addition, the fact that these changes were found in a measure of outcome in

the children's natural environment (school) provides support that the Social Competence Intervention Program may generalize across settings.

Figure 3

Changes in Solitary Behaviors for Treatment and Clinical Control Groups

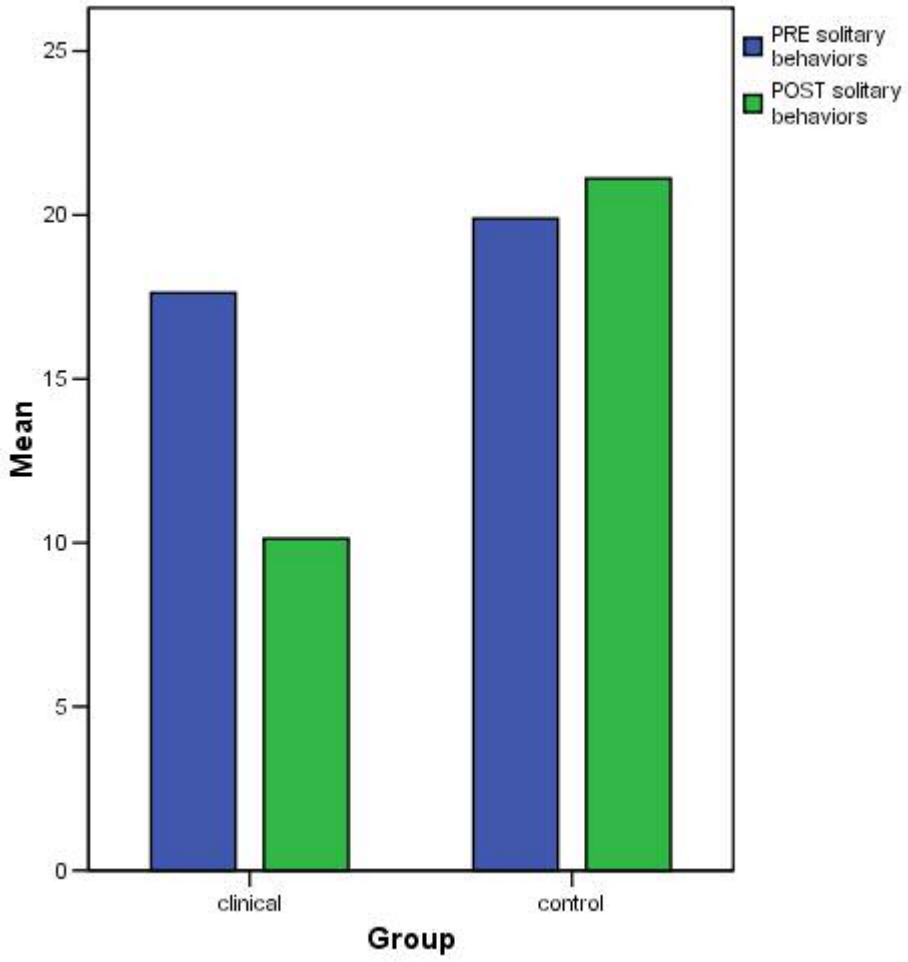
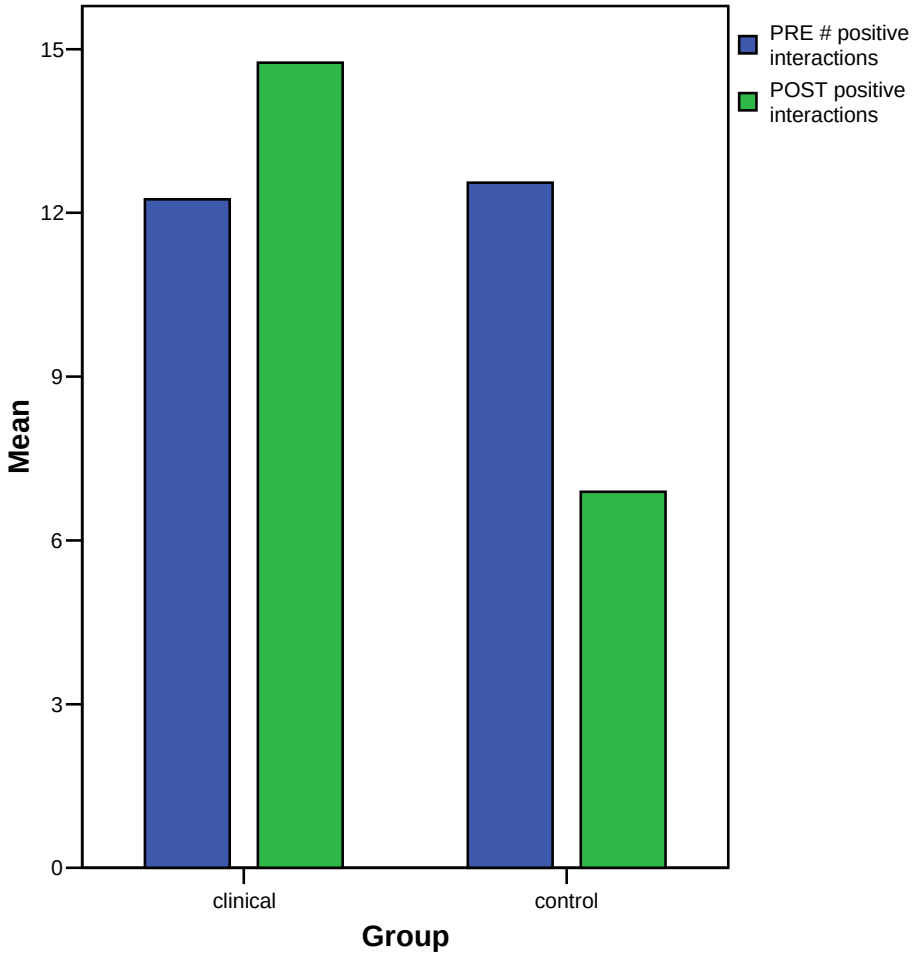


Figure 4

Changes in Positive Interactions for Treatment and Clinical Control Groups



Chapter 6: QUALITATIVE RESULTS

Interviewer: "What was the easiest thing about group?"
Child: "Nothing was easy."
Interviewer: "OK…Would you do it again?"
Child: "Yeah. If I had a chance, yes I would." [NVLD, 12]

Qualitative results will be reported in several stages and structured according to qualitative research questions. First, client satisfaction and effects of the intervention noted by both parents and children will be described. Second, relationships between these categories will be analyzed and explained to determine if certain factors made more of a difference than others on effects. Finally, various observations about the intervention experience by group leaders and participants will be discussed. In the following section, participants will be referred to by abbreviations of diagnosis and age. For example, interview quotes from an 8-year-old girl with Asperger Syndrome or her parent will be cited as [ASP8]. If more than one child shares age and diagnosis, letters (A, B, etc…) will be placed after these codes to distinguish them. Group leaders will be distinguished by the abbreviations L1, L2, etc.

Qualitative Research Question 1: Did the intervention improve participants' social competence?

Client Satisfaction. Client satisfaction was informally measured through feedback given in parent and child interviews. Seventeen of eighteen children (94%) reported that coming to group was a positive and fun experience. Only one child stated that he didn't like the intervention, explaining that it was a "baby group" and that he was bored by the activities. All sixteen parents interviewed (100%) also believed the intervention was a positive experience for their children, whether or not they saw changes in their child's social competence. Several parents and children mentioned the

inherent value of their children meeting and socializing with peers who had similar difficulties. For example, when an 11-year old boy with Asperger's first came to the group, he expected a very negative experience: "…kind of like a psycho hospital 'cause I've been inside a therapy office…where there are a bunch of quote-unquote 'problem kids." Instead of being similar to his past therapeutic experiences, the group normalized his difficulties: "It made me feel that I wasn't alone in the world…made me feel that there were other people going through the same things that I was, and understood what was going on."

Positive Intervention Effects. In addition to being satisfied with the experience, 75% of parents (12 of 16) and 82% of children interviewed (14 of 17) reported one or more positive change in social perception or competence after participating in the intervention. These changes were coded and grouped into several categories, as shown in Tables 13 and 14.

Table 13

Effects reported by treatment group parents

Effect	% Reported
Interpersonal Relations	68%
Nonverbal Perception/Expression	25%
Use of Traditional Social Skills	25%
Increased empathy	18.7%
Verbal expression	18.7%
Improved self-control	18.7%
Miscellaneous changes	31%
No changes noted	25%

A majority of parents interviewed (68%) noticed improvements in their child's interpersonal relations since participating in the intervention. Observations by parents in this category included that their child was more conversant, sought out others more, played better with others, appeared to be handling teasing better, responded more appropriately in conversation, or had made friends. The following direct quotes illustrate some changes noted by parents: "Before the intervention she would sit in the car with me, but since the intervention she goes 'I'm not afraid anymore' and she runs out and that was a big deal for her, real big…I know she wouldn't be where she is without the intervention. I'm very proud of the changes." [NVLD8]. "My sister…said it was like night and day. She said his face seemed a lot more animated and he seemed to make a big effort to communicate and actually do a give and take in communication…he carried on a conversation with her and asked her questions about herself and prompted her to continue the conversation….she was surprised." [NVLD12]. "I've noticed that he seems to be reaching out more to kids in the neighborhood to try to befriend them…I think the thing that I see is that he is more interested in people, in relating to them, and that's a positive thing. I would say a year ago he could care less." [PDD11] "He has seemed more interested in seeking out friends more. He has talked about that…having friends over more." [ASP10]

A couple of parents noticed changes in the expression of nonverbal cues as well as perception: "He was looking at her, making faces to her, making her laugh, he was laughing. I noticed his face shows more expression." [HFA8]. The same parent noted that "Well one day he got mad at me so he frowned and made a mad face and I said, 'Oh, you're mad.' And he said, 'Yes.' Another parent noticed that her son [ASP8] appeared to be showing more congruent affect and not laughing at sad topics anymore.

Several parents reported that they noticed their children showing more empathy for others, more thoughtfulness, or more awareness of their role in a social interaction. These changes were coded and grouped under the category of empathy. Empathy has been related to the concept of theory of mind, previously defined as the

ability to infer the mental states of others (Stone, Baron-Cohen, Knight, 1998). As one mother stated, “I have seen her showing more empathy toward (her sister)… if she falls down or hurts herself and is crying I have noticed that she is showing more attention to her.” [HFA8A] “He seems to have improved in being able to perhaps think about what the other person may be feeling, something that never entered his mind before. He even showed compassion yesterday for a friend with severe learning disabilities.” [ASP11] These changes were a somewhat unexpected result, since neither empathy nor theory of mind skills were directly targeted in this intervention.

A few parents noted that their children were using traditional social skills more appropriately, such as apologizing to another without prompting, inhibiting an inappropriate behavior, making better eye contact and using social greetings. As one child explained, “I just remember if I want to talk to someone I got to look at them.” [PDD11] The same child realized that he had to get permission before hugging someone, because otherwise it might scare them. Two parents reported that their children were greeting them and making conversation more spontaneously. “It seems like after this class he has made a very big effort to ask ‘how was your day’. Now, he may do it three or four times in a row because he doesn’t know how to lead a conversation any further along, but he knows that ‘this is one of the things I’m supposed to do now when I meet someone.” [NVLD12]

While more parents noted changes in their children’s interpersonal skills, the majority of children interviewed (68%) believed that they learned how to perceive nonverbal cues better, especially facial expressions and body language. “I can focus on other people’s body language a little bit clearer; I can understand what they’re saying with their body language a little bit clearer.” [ASP11] “I learned a lot like about feelings and stuff. I know mostly all those dolls (points to dolls on shelf) look sad…like their lips are kind of drooping.” [HFA8A] “If somebody were happy and they were showing that they were sad I could figure out how they were doing that….they said they were happy and they weren’t ‘cause they looked sad and I could tell they were sad.”

[NVLD8] “Besides learning about how people feel we learned about how people act.” [ADD10]

Table 14

Effects reported by treatment group participants

Type of Effect	% Reported
Believes can read nonverbal cues better	68%
Made friends in group	43%
Learned about feelings	25%
Gets along better with others	25%
Focuses better	6%
Has more self-control	12%
Expresses self better	6%
Doesn’t feel alone	6%
No changes	18%

Many of the children (43%) reported making friends in the group. Several children also explained that being in the group was helping them in school with peers. One 9- year-old child learned to “ignore people that tease you a lot and stuff and try to find out how feelings are by seeing faces and just hearing them.” [ASP9] Another child reported, “Now, I know a lot about feelings and I can talk to my friends more easily” [ADD10] An 8-year-old girl with NVLD explained, “It helped me to feel more that I had more confidence, so that I could say hi to people without being scared.” [NVLD8] A 12-year-old boy with NVLD said, “I’m a little bit calmer. I can understand people now. I have a social life now.” [NVLD12]

Finally, several parents and children reported other improvements in skills related to social competence, including improved self control and focus, improved

ability to express feelings verbally, and a better understanding of feelings. One boy explained that he learned a little more about himself: “I learned that I could handle myself a lot better than I thought I could.” [ASP11]

Negative effects. A few parents and children mentioned negative effects of participating in the intervention. These included effects of the time commitment required to participate as well as the effects of interacting with other children. For example, two parents were concerned that their children were extremely tired at the end of the school day to really benefit from the intervention content, and one 8-year-old male participant was concerned because he didn’t have enough time to do his homework on intervention days. One mother worried that seeing children with worse disabilities might have an upsetting effect on her child. Another mother noted that as her child participated in the intervention and became better at reading others’ nonverbal cues, he became increasingly aware of being teased and disliked in school.

No effects. Only 25% of parents interviewed (4 of 16) and 23.5% of children (4 of 17) did not report any changes in social functioning from the intervention. Still, each of these parents and all but one of the children had no regrets participating in the program. As one parent stated: “It’s not a bad thing that there weren’t any changes; I mean, I’m gonna be real realistic here. You know, with him having been in other social skills groups, it’s a very ongoing process, and things aren’t going to happen just overnight, or in an 8-week period. I’m glad he participated; I’m glad he was a part of the project. I think it’s a wonderful service you all offer.” [ADD10]

Qualitative Research Question 2: Was the intervention more effective for a particular population?

After qualitative data were coded and categories created, the data were reviewed again to look for relationships between categories. Detailed qualitative results

reported by parents for each participant with demographic data are found in Appendix H. Participant diagnoses, age, gender and subgroup were grouped by type of effect to see if any patterns exist indicating whether or not the intervention was more effective for a particular population. A careful review of data reveals that it did not appear to matter whether a child had a primary diagnosis of NVLD or an autistic spectrum disorder; children of both groups showed improvement and children in both groups did not. This finding was true for children with and without secondary diagnoses of ADHD. In other words, children with diagnosis of NVLD, Asperger's, High Functioning Autism and Pervasive Developmental Disorder all showed an improvement in at least one area of social competence.

There appears to be some suggestion, however, that children with a primary diagnosis of ADHD (and no other diagnosis) may have responded differently to the program. Before attrition, eight children in the treatment group had a primary diagnosis of ADHD. Three of these children dropped out of the group early. Of the five children with a primary diagnosis of ADHD remaining in the intervention, twoof these parents saw no positive effects. One parent, though contacted several times, was not available for post-interview. The parents of the two remaining children did report positive effects, but they did not note any improvement in nonverbal perception or expression. In other words, although eight children with a primary diagnosis of ADHD were originally in the treatment group, only two of these (25%) remained in the group and saw any benefit. Those parents that did see effects did not reported improvements in perceptual skills. Although no conclusions can be drawn from this observation, this data suggests that the Social Competence Intervention Program may not be as effective for children who do not have NVLD or an autistic spectrum disorder. Observation of group leaders is consistent with this finding. For example, one group leader wrote: "It appeared that the children with ADHD did not seem to learn or evolve as much as some of the others. It really seemed that the ADHD children had different needs and did not learn or gain as much from the activities that required identifying tone of voice, facial expressions, etc."

Another group leader noted that the children with a primary diagnosis of ADHD appeared to benefit from the self-control activities the most.

When examining the data of those children who didn't see changes, another similarity emerges. Half of the children in the treatment group whose parents didn't see any intervention effects were children whose parents noted higher levels of sadness and/or depressive symptoms. In addition, 75% of participants who dropped the intervention early had a history of depressive symptoms according to parent report. The parent of only one other child remaining in the treatment group noted similar sadness in the past; her mother noted some positive changes post-treatment but emphasized that she could not attribute them to the intervention. This observation raises questions about how participants' mood affects the efficacy of the intervention.

Moreover, the parents who reported the largest qualitative effects were those parents who waited for children in the School Psychology suite at the University of Texas at Austin and established their own informal "parent group." There could be several reasons why larger effects were present for this group. Parents who had a positive experience meeting each other may have been biased toward positive results simply because of their own positive experience in a supportive environment. It is also possible that being around other parents and discussing the intervention helped these parents reinforce the session's objectives at home. Finally, these five parents were in the Fall 2002 subgroups (both younger and older), which had 16 sessions, in comparison to the Spring 2003, which had to be abbreviated to 12. It may be that the extra four sessions contributed to a larger intervention effect.

Participant Age, Absences, and Gender. After coding effects according to age and gender, it appears that neither was linked to parent or child qualitative report. Both parents and children of younger (8-10) and older (11-14) age groups, as well as genders, reported both positive effects and lack of effects. Specifically, eight out of ten parents of children in the younger age group indicated positive effects and three out of five parents

of children in the older age group indicated positive effects. The interviews of two parents of older children were not available. It is more difficult to draw any conclusions about difficulty in gender, since only three girls were in the treatment group, and all three parents of these girls reported positive effects. Another factor that may have affected treatment efficacy was participant absences. Although parents were asked to try to keep absences to a minimum (no more than two), several children missed up to four sessions due to allergies, extra-curricular activities, or fatigue due to standardized testing. When data of those children with absences was analyzed, however, it appeared that there was no obvious connection between absences and intervention effects.

Qualitative Research Question 3: What were the reactions of participants, parents and group leaders to the intervention?

Group leader experience. Group leader data from five graduate students' journals kept during intervention as well as observations made throughout the intervention program were analyzed. Overall, four out of five group leaders reported that they had a positive experience leading the groups. Prior to the study, I wondered if psychology students would be able to successfully lead drama activities. Most group leaders admitted to being nervous before certain activities that required more traditional "acting" skills, since no group leaders besides the author had any drama experience or education. As it turned out, group leaders enjoyed leading the activities, particularly the process dramas, which were new for them. "The process went smoothly today, and I was nervous about the process drama. I think the leaders and kids had fun and the objectives were met….behavior management was a breeze because the kids became so involved in the activity." [L2]

Observations of Participants. Group leaders recorded observations about participants throughout the intervention. On the whole, we were surprised to see the wide variety of abilities and skills that existed within and among the groups, despite the

fact that all children had similar social difficulties. For example, after the first session in fall 2002, one leader recorded differences between children regarding how much they know about emotions. "(Two children) had a lot of 'textbook' knowledge about feelings. Others seem to lack some of the basic information about emotion." [L2]

Some children on the autistic spectrum were observed to have symptoms not directly related to their social perception skills that impacted their social competence. These included problems with hygiene as well as self-stimulating behaviors, such as making a repetitive noise or playing with one's hands. For example, during one process drama, a child diagnosed with Asperger's/ADHD made repetitive animal noises and tried to lick another child. Naturally, the other children responded very negatively to him and the activity was interrupted. Even though these symptoms are often seen in NVLD and autistic spectrum disorders, they were not targeted by the intervention, and this sometimes made leading activities difficult.

Children with the same diagnoses had social perception and social competence skills that varied widely. In each subgroup, leaders were surprised to observe that a number of children on the autistic spectrum had more difficulty expressing nonverbal cues than perceiving them. In many cases, children did not have difficulty perceiving facial expressions and voices as described by the literature, at least as required by the manual's activities. "S's affect is normally flat. With this game, though, she really exaggerated her nonverbal cues since she was not able to use her words. I think that this was good practice in the expression of nonverbal cues for Asperger's." [L5] "(One child) had trouble even saying the sentences with the correct emphasis. (This) made me notice that he doesn't normally speak with the proper inflection or rhythm." [L1] "(Three children) seemed to exhibit problems in demonstrating different emotions—they were able to guess others' emotions correctly but had difficulty producing the facial expressions themselves." [L4] "(Five children) were accurate in being able to explain why they thought someone was feeling a certain emotion in the tape, indicating that they were able to identify emotional output…I thought that this also showed that

these kids may not have a problem identifying although some of them were having difficulties with output." [L4] "Some of the kids are better than others at expressing vocal cues, and some are better than other at interpreting them. However, I think they all lack a perception of themselves and how they express emotion." [L1] Observations were also made about the different needs of children with autistic spectrum disorders and those who only had ADHD. For example, "The intensity thing really stood out today, how some people need help making it bigger (Asperger's) and some need help making it smaller (ADHD). [L1]

Response to Intervention Content. Parents, children and group leaders were asked what they thought was the most helpful piece of the intervention. Generally, parents were not able to answer this question, since they did not observe sessions. Some parents mentioned that they believed that just being with peers had a positive effect; others mentioned that intervention content helped, but they didn't know how. When the children were asked what they remembered or what was helpful about the intervention, they mentioned a variety of specific activities, including the "mirror" game, "gift giving", and "gibberish". In the mirror activity, a traditional drama game, two children face each other and silently mirror each other's movements. Group leaders noticed that the majority of children responded extremely well to this activity. On certain occasions, the activity was brought back in later sessions as a means to focus children's attention and/or help solve conflicts between two children who were in conflict. Often, group leaders observed that when children who did not get along were paired up for the activity, their conflict decreased. Perhaps the eye contact and observation focus required in the game helped children to self-regulate behavior, and perhaps the give-and-take of movement required by the game helped forge a bond between participants. In the "gift giving" game, children pantomimed giving and receiving gifts to each other. While the "giver" was allowed to give anything, regardless of size or sense, the "receiver" had to accept the gift with great gratitude and

enthusiasm. The game often resulted in laughter and giggles from participants, who enjoyed thinking of all the funny things they could give, such as an elephant or an old piece of chewing gum. Although children with autistic spectrum disorders are often characterized as being unable to engage in or enjoy pretend play, group leaders observed that the children loved this activity. While some children had a difficult time accepting absurd and imaginary gifts with enthusiasm, they responded positively with leader encouragement. In the "gibberish" game, children were asked to have a conversation with a partner in a made-up language called "gibberish." Group leaders gave participants topics to talk about that had emotionally laden content. Although participants couldn't understand the actual meaning of what their conversation partner was saying, they had to try to understand and respond, in gibberish, appropriately. For example, participants were asked to talk about the scariest dream they ever had and describe their favorite vacation. By taking away actual verbal content, participants were forced to focus on the nonverbal cues to determine how to respond.

In child interviews, most frequent mention was made of the various process dramas. Group leaders also noted that of all the activities, the children appeared to enjoy and benefit from the process dramas in the "integration" portion of the intervention most. As group leaders noted, "All of the kids…took their 'spaceship' roles very seriously and acted our their functions in an appropriate way without intruding upon anyone else…Since the kids really liked this type of role-play and really got into it, maybe this type of activity could be integrated earlier in the intervention and in every session, especially for those that may contain concepts difficult for them to grasp, e.g., point of view…) [L3] "The kids were very involved and really seemed to use their faces, voices and bodies to depict the emotion." [L4]

Process dramas written for and enacted in this intervention included "Miss Gibber and the Stolen Dog" and "Spaceship Mission" for younger children (8-10 years) and "Scotland Yard and the Case of the Stolen Cake", "Theft at the Computer Store" and "Ad Agency" for older children (11-14 years). In the first dramas, group leaders

presented participants with a context in which they had to take dramatic roles and solve a problem by decoding nonverbal cues. For example, in “Miss Gibber and the Stolen Dog,” “Theft at the Computer Store” and “Scotland Yard” dramas, children took the roles of detectives in an agency, while a group leaders took the role of a head detectives needing help from his/her team. Participants were asked to interview suspects (played by other group leaders) and examine context cues to help them determine who the guilty party was and solve the mystery. In “Miss Gibber and the Stolen Dog”, the younger subgroup of children had to determine what happened to a dog based on the facial and vocal tone cues of a witness who could only speak in Gibberish. In “Theft at the Computer Store” and “Scotland Yard…” participants were asked to interview suspects played by group leaders, one of whom spoke with incongruent nonverbal and context cues, and determine who was guilty. For example, the guilty party in each drama smiled, saying that she was innocent and calm, but spoke very nervously and angrily. In “Space Station” and “Ad Agency” participants pretended to be members of a team presented with a mission. In “Space Station”, children developed roles of members of a space station traveling around the universe to learn about other beings. After being introduced to the drama, the children received an urgent message from aliens threatening to destroy earth because it cannot decipher the confusing emotional meanings in human communication. With group leader assistance, the participants decided to develop a videotape that will help the aliens understand how to read and express nonverbal cues better. In “Ad Agency”, older children took the roles of members of an ad agency faced with a new contract. The task asked them to produce a video to help parents understand how pre-teenagers interact with each other. By filming improvised interactions between peers and then watching themselves on tape, participants practiced integrating the skills they had learned in earlier sessions in a real life context.

There are several possible reasons why the process dramas were so effective and memorable with this population of children. First, by taking dramatic roles in a

group context, children were guided to pretend and simply *play* with each other, something inherently enjoyable that they did not have much experience doing due to their social difficulties. At times, certain children did have difficulty pretending, as when one child repeated "she's not *real!*" when a group leader acted in role. At times like this, group leaders modeled pretending, encouraged participants, and used disagreements as opportunities to help children with conflict resolution.

In process dramas, participants were active at all times. Discussion was not separate from the activity, but a part of the activity. Participation in discussion during process dramas was in great contrast to the children's participation in discussion in other parts of the intervention. The attention difficulties experienced by a majority of participants made it difficult for them to sit and discuss in a traditional format. In other parts of the intervention, often behavioral management difficulties occurred during the discussion, when some children were easily distracted and had difficulty sitting still. Children discussing a topic in role, however, were more likely to be engaged since they wanted to be a part of the activity.

Another possible reason for the success of the process dramas may be that drama content was written and altered when necessary, so that it would appeal to the ages and interests of the participants. For example, although "Scotland Yard" was done with the fall 2001 subgroup, group leaders of the Spring 2002 subgroup felt that their participants would not respond as well to the theme. Since several children in spring 2002 were very interested in computers and video games, leaders modified the Scotland Yard drama, and the theft of a cake became a theft at the computer store. While the story, script and props changed, the task and overall theme remained the same: detectives were asked to solve a mystery by decoding incongruent nonverbal cues. Process drama may also have been successful because its use of artifacts (such as props and costume pieces) engaged the interest and curiosity of the children. In the "Computer Store" drama, clues included handmade "crime" tape, empty game console boxes, old computer parts and toy walkie-talkies. While additional preparation and planning was

necessary when using artifacts and costumes, they made the situation more "real" and exciting for participants.

Suggestions for improvement. When asked how the intervention could be improved, both parents and children had a variety of suggestions, all of which appeared to be related to group structure and organization (see Table 15). Three parents and one child wished that the intervention was much longer than 16 sessions, because they felt like sessions only began to touch on topics and then moved on before they could be mastered. "Maybe just work on one topic more than just one time. When they started getting the feel of it then it was switched. They didn't master one activity before they moved on." [ADHD9]. A number of interviewees suggested that groups be more homogenous by age, diagnosis, or gender (four parents, three children) as well as smaller (one parent, one child). Four children and two parents noted that the groups sometimes had behavior management problems and that this made them possibly less focused on social competence and more on disruptive behavior. In particular, they reported that behavior management difficulties were problematic because loud or out of control children upset other children who were easily over-stimulated. One child also explained that no one new should be introduced after groups had begun, because this disrupted things. Specifically, he was referring to an incident that occurred in fall 2002, when a 10-year-old child with ADHD was briefly moved to the older group from the younger group after two sessions. Since the child had expressed some discomfort about being the only 10-year-old in the 8-10 year old group, it was believed he might be more comfortable being with some 11-year-olds. Unfortunately, the 10-year-old was very disruptive to the group, and after two sessions, it became clear that the younger group was more appropriate for him.

A common theme among parent responses was the desire for increased involvement in the intervention. Although no question was specifically asked about parent involvement, seven parents spontaneously emphasized that they wanted more

feedback about exactly what happened in each session so that they could replicate it at home. Parents did receive an outline of program activities on the first day, but detailed explanations of the activities were not provided. One parent said, "I would have given anything if I could have watched." [ASP11]

Group leaders also thought that the intervention could be improved by improving behavior management, lengthening the intervention, and modifying group makeup. Additionally, group leaders also noted that the intervention could be improved by making specific changes to intervention content. Two group leaders suggested that discussion be even more tailored to what was happening day to day in the children's lives, so that skills would be generalized more. One leader wrote: "I think that a portion of each session could be spent on individual issues that the kids are facing in their lives. I think that the more the kids share with the group, the more that increases the trust and communal atmosphere of the group…and the more the group was able to discuss and suggest solutions to problems, especially solutions incorporating things learned in the group, the more the techniques in the group were reinforced." [L4] Another group leader noted that participants appeared to benefit greatly from watching themselves on video in later sessions, and suggested that video be incorporated earlier.

Despite the fact that manual content differed for older and younger groups, group leaders of the fall 2002 younger subgroup observed that certain activities appeared to be above the children's ability level and should be modified further. "We continued to talk about when cues don't match. I believe that this might be a difficult concept for these young children, so detailed guidelines in the manual are important." [L5] "Discussions need to be limited with this age group (8-10)…attention/interest span too limited…" [L5] "The discussion concerning 'standing in someone else's shoes' did not go well—they had a difficult time with this and interpreted it literally…we tried relating it to the discussion of mismatching cues, which was a step forward but they still didn't get it—might need to rework this session to make it more compatible with their

cognitive level." [L4] Leaders also observed that younger children needed more time with activities targeting vocal tone and emphasis.

Table 15

Suggestions for Improvement

Source	Suggestion	# Responses
Parents	More feedback and/or involvement	7
	Make intervention longer	5
	Split groups into similar ages more	2
	Adjust HW assignments	2
	Improve behavior management	1
	Make group smaller	1
	Don't hold group after the school day	1
Children	Improve behavior management	4
	Split groups into ages more	3
	Keep group makeup stable	1
	Make group smaller	1
	Make group longer	1
	More discussion	1
	Less discussion	1
	Let kids make up own games	1
	Add voice activities	1
Group leaders	Solidify behavior management strategies	5
	Make groups smaller	3
	Modify manual more for younger children	1
	Introduce process drama earlier in manual	1
	Include more videotaping in manual	1

Variations from manual. Variations from the manual occurred as leaders adapted to the specific needs of group members. If, for example, the children's activity level was high on a rainy day because they did not get to out to recess at school, a more physical activity might be substituted for a seated one. Though variations from the manual may have lessened treatment fidelity, flexibility was also expected when working with children, particularly using drama improvisation. Group leaders were asked that they keep the spirit of the planned activities and ensure that the session's objectives were met when varying from manual content.

Examples of modifications to the manual included substituting one activity for another similar activity to better meet group needs, pulling children out for individual consultation, and holding impromptu group discussions regarding peer interactions. "We were all flexible with this, and that is how we needed to be. When the two (spaceship teams) were not working, leaders were all cooperative in changing the plans." [L2] Peer conflicts were often used as therapeutic opportunities to teach participants about problem solving and help them recognize their role in a social interaction. "(W) expressed that he was hurt and the instance was used as a therapeutic opportunity and a group discussion ensued, specifically regarding how one has to consider how the other person will receive a message prior to voicing it." [L2] On another occasions, although a discussion about teasing was extended to 45 minutes after it became apparent that the kids were benefiting from telling their stories and brainstorming solutions. As one group leader wrote: "I almost thought I was going to cry today. I forget that these kids are pretty much outcasts at school, because I only see them in relation to each other. I never knew bullying was so horrible! How can they get any work done at all when they are scared every day? I am really glad that they were comfortable to have the discussion, and I hope we were able to help them a little by

brainstorming solutions. I think that it probably helped them a little just to talk about it, especially with each other." [L1]

In many cases, individual children were briefly pulled out of session to consult with them about their behavior or emotions. An example of this occurred when a child in the spring 2003 subgroup accidentally mispronounced "fork" as a bad word. When the other children laughed in response, he was mortified, and began to cry. One group leader took him out of the room briefly so that he could have some privacy, to help him process his feelings and to reassure him that he could successfully return to the group. At the same time, other group leaders worked with the remaining children regarding sensitivity to others' feelings and how to respond to the child who cried.

Parent-to-parent contact. An unexpected positive effect of the intervention was that parents greatly enjoyed meeting parents of children with similar disabilities. When the intervention was run in fall 2002 at the University of Texas, approximately 5-6 parents chose to wait in the School Psychology suite for their children and talk instead of leaving campus. An informal parent support group was created, during which time parents shared their stories with each other, shared resources with each other, and made plans to meet outside of the intervention context. Several parents shared how normalizing an experience this was for them, and how it helped them know what to expect at different age levels. "It was wonderful for me to meet other people and children and we could laugh and joke about it instead of talk about how horrible our trials and tribulations are…nobody who doesn't have a child with this kind of problem understands." [HFA8] "We're not psycho moms; we have each other." [ASP8] This parent explained that talking to the parents of older children helped her see "into the future" regarding good and bad things that might occur. [ASP8] Meeting other parents who could understand specific experiences was a large relief. As one mother explained, "Unfortunately with the kind of disability that our kids have, you run up into brick walls with everybody. Nobody wants to help you. And everybody that I've ever come across,

whether it's medical, in education, psychological, anybody, it's always been, 'Don't worry about it, just put it in the back of your mind, stop looking.'"[ASP8] Another mother stated that "mothers like this don't get sympathy; they get blame." [ASP11] Speaking to other parents helped this same mother put her child's behavior difficulties into perspective and "continue to develop compassion for his social difficulties…it helps me remember that some of the things he says are not out of hatefulness but ignorance."

Behavior Management. Throughout the intervention, behavior management was a recurring issue with all subgroups. Although group leaders were trained briefly in cooperative discipline techniques (Albert, 1996) prior to intervention, it soon became clear to everyone that a more structured and consistently implemented behavior management system was needed. In all subgroups, children occasionally became too active or loud, and manual activities had to be interrupted. Some of the "rowdiness" was welcomed, as it reflected the fact that children were making friends with each other and having fun. As a group leader noted, "R and N have formed a friendship and sometimes get very distracted by each other. It is great that they have formed this friendship, but they really need to work on controlling their behavior." [L2] Also, some behavior management difficulties were to be expected since the intervention was held after a long school day, since many of the children suffered from attention difficulties, and since drama activities tend to be less structured than others. In other cases, however, it appears that misbehavior could have been prevented by making some changes in program organization.

Group leader observations suggested that space constraints and large group size contributed to behavior management problems in the fall 2002 subgroups. For example, in the older subgroup in which this author was a leader, behavior management improved significantly after four members dropped the intervention. In the younger subgroup, eight children remained in a limited space. Group leaders noticed marked

improvements in behavior, however, when children were absent and the group was smaller. “This was a good session, because only four of the eight children were there! The size of the group was manageable for us.” [L5] “It is really interesting to experience how much easier it is to have a discussion when there are only a few kids there. This may be why W opened up.” [L2] “There are too many kids in such a small room, it is over-stimulating!” [L5] In spring 2003, holding the intervention at Odyssey private school came with its own challenges. The advantage was that we were able to use a very large room with enough space for physical activity; the disadvantage was that the room was originally a dance studio, and contained a long mirror running the length of one wall. Two children on the autistic spectrum with self-stimulating behaviors were often distracted by their own reflections and played with their faces during planned activities.

At times it appeared that the impulsive and hyperactive symptoms of some children with ADHD caused other children to become easily over-stimulated or overwhelmed. This behavior occurred in spite of the fact that many children had comorbid diagnoses of ADHD and another disorder. “It seemed that (child) had a really hard time focusing because of all of the chaos that was going on around him. I think he would benefit a lot more from a group with a higher teacher to child ratio, and less children. Specifically, I think he would gain a lot more from a group that did not include children with ADHD, due to the fact that they significantly raise the energy level in the room and present different needs that can be distracting.” [L3] “It was extremely difficult to keep (child) engaged because it was so loud in the room. He kept running out of the room. At one point he covered his ears and ran out.” [L5] Another child liked to sit and barricade himself with chairs in the back of the room when over-stimulated, explaining that he became a ‘box turtle’ when stressed. By the last session, the ‘box turtle’ was rarely seen, thanks to intervention on the part of group leaders.

Strategies used to improve behavior management problems included the implementation of a response-cost reward system. The response-cost system was

implemented in session 9 of fall 2002 subgroups and from the beginning of the Spring 2003 subgroup. Specifically, children were told that they would receive a certain number of points at the end of each session unless they lost points due to specific misbehaviors. The number of points they managed to retain at the end of each session could be exchanged for small tangible prizes (i.e., plastic rings, stickers, etc). In addition, children received a tangible reward for completing and writing about their home challenge in their journal. Group leaders noted that behavior improved greatly when this system was implemented.

Another strategy used to improve behavior management was the establishment of individual goals for participants. In each subgroup, leaders asked participants to come up with a personal goal that they could work on throughout the sessions and emphasized the importance of children helping each other to maintain their goals. Group leaders occasionally reminded children about these goals, which included participating in new activities, offering ideas in discussion, keeping hands to self, or not interrupting others.

Group leader conflict. Naturally, group leaders came to the intervention with different experiences, and different styles. In group leader training, leaders decided that they would mutually decide prior to group who would lead each activity and/or be responsible for preparation. As project leader, I emphasized the importance of modeling cooperation and positive communication for the children. I also stressed that any misunderstandings or tensions be raised in weekly supervision meetings so that they did not affect the project.

Despite these preparations, conflict did arise between leaders in the in fall 2002 subgroup. Several group leader journals allude to tension building and finally reaching a head. Specifically, two group leaders differed in their levels of tolerance for behavior management difficulties. Finally, tension broke during a session when two group leaders had a confrontation in front of the children. Despite weekly supervision

meetings, I was not aware of the level of this tension until after the “argument”. Perhaps the group leaders did not feel comfortable raising their concerns with me due to my multiple roles in the project. As leader of the project, I was concerned that this would affect the intervention’s efficacy. As a clinician, I was even more concerned that the children had to be witness to an unpleasant scene. I also had to deal with my own feelings of frustration at the group leaders who, although doctoral students in psychology, let difficulties in their personal relationship prevail in a therapeutic and research context in front of children (who, ironically, were participating to learn about how to interact better socially). After finding out about the event, I met both individually and together with the two group leaders following supervision with the lead Professor. After many hours of supervision and discussion, we agreed on a plan: implement a response-cost behavior management system using regular rewards, hold a brief discussion with the children about the conflict and use it as a learning opportunity, and make sure leaders were adequately prepared in advance about the roles they would take during a session.

Since this event may have influenced the efficacy of the intervention for this subgroup, I reflected upon what might have contributed to this conflict. Conversation with the two group leaders involved revealed that they felt somewhat unprepared to deal with the level of behavioral difficulties in the group, since neither one had much experience leading groups of children. Also, both stated that cooperative discipline techniques were not sufficient as a behavior management plan with this population of children. Group leaders also felt uncomfortable sharing frustrations with each other in training because time was limited, and there was much to talk about. Finally, some of the difficulty was attributed to a lack of communication amongst the younger subgroup’s leaders regarding roles and expectation of group members.

Chapter 6: DISCUSSION

The purpose of this study was to examine the effects of the Social Competence Intervention program on children with deficits in social perception. In this chapter, results from the study are summarized and discussed within the context of previous research. Qualitative and quantitative results will be integrated and discussed. Finally, implications for theory, research and practice, and suggestions for future research are discussed. The limitations of this study will also be explored.

In this study, a treatment and clinical control group with deficits in social perception were compared on several outcome measures before and after a multiple session drama-based group intervention. Outcome measures included a measure of the ability to decode emotions based on facial expression and voice cues, parent ratings on behavioral checklists of withdrawal and social skills, and direct behavioral observations of peer interactions. Post intervention, parents and children in the treatment group were interviewed about their experience and group leaders were also asked to record their experiences and observations in journals throughout the intervention. All of this data were coded and analyzed according to grounded theory procedure methodology.

Both quantitative and qualitative results provide encouraging support for the efficacy of the Social Competence Intervention Program. Although quantitative analyses did not produce significant results, results approached significance for the analyses of both DANVA2 faces subtest and direct behavioral observations. These findings are particularly noteworthy considering that exploratory questions were only conducted on a sub-sample of participants (n = 17). Qualitative results were also encouraging. According to parent interview, 75% of parents (12/16) reported one or more positive changes in social perception or competence after participating in the intervention. Similarly, 82% of children interviewed (14/17) reported one or more positive effect of the intervention. These qualitative findings may actually be an

underestimate of intervention effects, since parents were only asked to report changes they remembered seeing instead of being provided with a checklist with choices to choose from. Thus, this study's results suggest that effects may generalize over settings (i.e. home and school).

The results of this study lend support to existing research stating that social skills interventions need to be targeted to specific difficulties and populations (Beelman, Pflingston & Losel, 1994; Forness & Kavale, 1996; Gresham, 1997). Current findings lend particular support to research advocating training in perception and integration of nonverbal cues for children with nonverbal learning disabilities and autistic spectrum disorders (Barnhill, Cook, Tebbenkamp & Myles, 2002; Bauminger, 2002; Carlyon, 1997; Kransy, Williams, Provencal & Ozonoff, 2003). Results of this study also contribute to the literature advocating the use of drama as intervention for these populations and as social skill intervention in general (de la Cruz, Ming-Gon, Doyle, 2001; Freeman, Sullivan & Fulton, 2003; Lian & Morreau, 1998; Peter, 2003; Sherratt & Peter, 2003; Walsh, 1992).

Qualitative and quantitative results, however, were only partially consistent with each other. The report that treatment group participants believed they could read facial expressions better was consistent with analyses of the DANVA2 faces subtest that approached, although did not meet, significance. Likewise, the lack of change on the DANVA2 voice measure was consistent with the fact that few children interviewed reported that they could interpret voices better. Changes in the treatment group's behavioral observations with peers were also consistent with parents' observation of improved interpersonal relations. In contrast, parent ratings on the BASC and parent interviews appear to contradict each other. The lack of change in withdrawal and social skills scales on the BASC implies that parents saw no changes in their children; however, many parents did report changes in social competence in interviews. How might this discrepancy be explained?

Perhaps one explanation for this inconsistency is that BASC items were not sensitive enough to discern these changes. For example, the BASC withdrawal scale is made of 10-15 items rated on a 4 point scale. If a parent changed his/her rating from "sometimes" to "often" on an item asking about a child's willingness to be social, this change may not have been captured as a significant quantitative difference. This change may have made quite a significant practical difference, however, in that child's life. Parent report of change in interviews is supported by the fact that the behavioral observation data did approach significance, and likely would have been significant if the sample was larger. Another reason for the inconsistency between parent interview and parent BASC data may be that participants changed in domains not captured by the Social Skills and Withdrawal scales on the BASC. For example, changes in empathy and conversational reciprocity were not captured by the items in these scales or others on the BASC.

There is the also the possibility that parents reported changes in interviews greater than they actually observed. Parents may have been invested in the project, and biased to see positive results in their children. Certain parents may have reported positive results simply to please the interviewer, since she was the primary researcher of the project and worked with the children personally as a group leader. Because parents of the clinical control group were not interviewed, it is difficult to know if these factors played any role in parents' report of intervention effects.

Inconsistent qualitative and quantitative results also raise the question of why participants improved in their ability to interact with others. Theory suggests that perception of both facial and paralanguage cues are necessary for social competence. In this study, however, intervention participants did not improve at all in their ability to decode paralanguage cues as measured by the DANVA2. Does this mean that changes in perception of facial expression were enough to effect some change in social competence, or that changes in social competence happened for other reasons? Perhaps

facial cues and/or context cues assisted children with the vocal information being provided and helped with social interpretation.

Analyses of qualitative data suggest certain patterns about intervention efficacy. First, the data raises some questions about how children with a sole diagnosis of ADHD may respond to the program. Although eight children with a primary diagnosis of ADHD were originally in the treatment group, only two of these (25%) remained in the group and saw any benefit. No conclusions can be drawn with such few children, but this observation is worth investigating in future research. Furthermore, qualitative results lead us to question if depressed mood hindered participants' ability to benefit from the intervention program. Half of the children in the treatment group whose parents didn't see any intervention effects had higher levels of sadness or depressed mood according to parent report, as did 75% of participants who dropped the intervention. This observation alone is not enough evidence to claim that depressed mood affects intervention efficacy, but it raises the question as worthy of exploration. Replications of this or similar studies may wish to explore this relationship further.

Qualitative analysis of interviews and group leader journals provided important information about the organization and makeup of the interventions. Parent, child and group leader data stressed the importance of a clear and consistent behavioral management plan, increased contact and feedback for parents, and clearer group leader role definition. Qualitative data also highlighted specific anecdotes that painted a picture of the actual experience of participants.

Implications for Theory, Research and Practice

Implications for Theory

The results of this study provide additional support for Voeller's (1994) model of social competence deficits. Voeller's model argues that there are three types of children with social competence deficits: Type 1 (aggressive behaviors), Type 2 (social

perception deficits), and Type 3 (inability to regulate behavior). This intervention specifically targeted Type 2 children, with deficits in social perception, and excluded Type 1 children with aggressive and/or manipulative behaviors. Though many participants also had difficulty regulating their behaviors (Type 3), all were required to have deficits in social perception. Results of this study suggest that the Social Competence Intervention Program addressed Type 2 (NVLD and autistic spectrum disorders) more than Type 3 (ADHD), although both were included in the sample. Although both types typically score low on measures of social perception, they may do so for different reasons. As stated previously, several researchers (Carrol, Bain and Houghton, 1994; Whalen et. al, 1990) have claimed that children with ADHD may have difficulty with social perception due to impulsive responding or inattention to cues, not due to actual processing deficits. Since this intervention had positive effects, its results lend support to the idea that these three types exist, though they may not be exclusive. Results further emphasize the need for future interventions to target specific deficits instead of taking a "one size fits all" approach.

The wide variety of treatment effects reported by parents also clearly illustrates that social perception is only one small piece of social competence. As discussed previously, social competence has been defined in a variety of ways, all of which encompass successful social interaction (Custrini & Feldman, 1989; Dodge, 1986; Gresham, 1992; Kavale & Forness, 1996; Vaughn & Hogan, 1990). Social perception is a key part of many of these definitions, since one must accurately understand and respond to others' social cues to be socially successful (Zabel, 1979; Nowicki & Duke, 1994). It appears, however, that the current intervention, though specifically targeting social perception, addressed other aspects of social competence as well. These appear to have included not empathy, self concept, and self-control.

Another implication for theory concerns the issue of comorbidity of ADHD with NVLD and autistic spectrum disorders. The fact that a majority of participants had a diagnosis of ADHD (comorbid or not), is consistent with the findings of previous

research (Schatz, Weimer & Trauner, 2002; Voeller, 1994) and leads one to question whether these disorders really distinct. Do all of these children really have ADHD, or are their symptoms just another symptom of their other diagnosis? Certainly, as previous researchers have asserted, these diagnoses may not be distinct but overlap (Harnadek & Rourke, 1994). As previously discussed, research indicates that Asperger's Syndrome, ADHD, and right hemisphere disorders share similar profile of executive dysfunction (Brumback & Staon, 1982; Hynd, Semrud-Clikeman, et. al, 1990; Nyden, Gillberg, Hjelmquist & Heimann, 1999, Posner, Peterson, Fox & Raichle, 1988). In fact, Rourke (1989) lists attention deficits as a secondary deficit in his model of NVLD. The current study's data acts as a reminder that diagnostic categories, particularly with children, are not discrete entities, but subject to change as research better understands their neuropsychological bases.

Implications for Research

Results of this study also have several implications for research in school psychology. First, the difficulty that this study and other studies studying this population of children had recruiting a large number of participants (Barnhill, Cook, Tebbenkamp & Myles, 2002; Bauminger, 2002; Doyle, 2001; Provencal, 2003, Webb, 2003) suggests that experimental group design may not appropriate for studies with this population. Due to the difficulty recruiting a large number of participants with NVLD and autistic spectrum disorders, it is recommended that methodologically strong single-participant designs (i.e., multiple baseline or multiple probe) be conducted with these populations in the future. Single participant designs require a smaller number of participants. Fewer participants would be easier to acquire and would also provide a way to limit the number of individual participant factors affecting outcome. In addition, single-participant design would be well suited for the continued collection of behavioral observation data. The analyses of direct behavioral observations in this study came very close to finding significant effects, and are a strong indicator of skills generalizing to

the natural setting. The acknowledgement of the validity of single participant research has been increasing in recent years, and has been suggested for the school practitioner-researcher, who may not have the ability to conduct tightly controlled experimental designs (Galloway & Sheridan, 1994).

Despite the fact that this intervention targeted children with social perception deficits, it quickly became apparent that many differences existed among participants. While certain children had more difficulty with perception of nonverbal cues, others struggled with expression. Still others had self-stimulating behaviors or problems with hygiene that clearly contributed to their social difficulties. This observation was consistent with previous research noting that symptoms of autistic spectrum disorders can vary widely (Tantam, 2000; Volkmar, Klin & Sparrow, 2000). Research is sorely needed exploring these difficulties, so that needs can be identified and interventions targeted accordingly.

Also, it is unclear still what components contributed to the current intervention's efficacy. One section of the intervention (input, integration or output) may have been more influential than another. It could be that positive group interaction was enough to improve social interaction. Another factor that may have contributed to change was this intervention's focus on perspective training. No outcome measure specifically tested for this construct, and several parents mentioned that their children appeared to be more aware of other points of view post-intervention. Future research is encouraged to include ways to analyze the effects of the intervention's identifiable components to better understand why the program was effective. Identifiable components may be defined as the degree to which specific aspects or components of an intervention program are linked with specific outcomes (Kratochwill & Stoiber, 2002). One way to do this may be to interview or test participants after each step of the intervention.

Finally, the way of relating to the world experienced by a child with Asperger's Syndrome and related disorders is worth exploring within its cultural

context. The unique style of communication, need for routine and unusual view of others shared by children with these types of disorders are classified as deficits of interaction and theory of mind. Though these differences are believed to be maladaptive in Western culture; it is worth exploring how they might be perceived or responded to in other cultural contexts. Indeed, there are those who believe that their differences are not deficits, but in fact strengths. In the words of a 13-year-old boy with Asperger's Syndrome, "One unusual thing about me is that I have what some people would call a disability but I call a gift—Asperger Syndrome" (Jackson, 2002, p. 19).

Implications for Practice

The current study's results have the greatest implications, perhaps, for school psychology practice. The Social Competence Intervention Program (SCIP) appears well suited for portability to the classroom for several reasons. In the school environment, personnel from school psychology, drama and special education are present and may collaborate to combine their expertise. Schools often have the large spaces required for drama activities. If the intervention is held at school, no transportation would be needed, so fatigue would not be as great a factor. Thus, portability to the school system seems a logical next step for social competence interventions like SCIP.

One must ask the question, though, if portability is realistic given the demands of today's school systems. Portability to the classroom might require collaboration between school psychology, drama and special education disciplines for success. It is not clear whether this type of collaboration is realistic given schedule demands and personnel shortages in many schools. Also, graduate students in education, psychology and related disciplines need to be trained in such interventions. The experience of group leaders in this study, while generally positive, indicated that leaders need training in behavior management and would benefit from drama experience. Unfortunately, fine arts programs, school psychology services and special education resources are often among the first things to be cut when schools face funding difficulties. At the very least,

a strong basis of empirical support would probably be necessary to convince school districts that the intervention program is worth the investment in time and resources. A financial advantage of such a program may be that group interventions often cost less than individual services.

The findings of this study also have important implications regarding the importance of involving parents of these populations of children in group interventions. Parents spoke loud and clear about their wish to be involved, either through observation, home activities, and/or participation in a parent component of intervention. Although there was not a structured parent component to this intervention, several parents formed an informal support group throughout the process, allowing them to regularly share helpful information with one another and gain greater understanding of the intervention's goals. Several of these parents shared that they discussed group objectives or did group activities at home with their child. The fact that these parents reported the strongest positive changes in interviews emphasizes the great power of parent involvement and importance of involving parents in the process of intervention. There are several options for parent involvement, including a separate parent manual, ongoing parent workshops, and/or initial parent education before intervention. In a particular school context, one option may be more viable than another.

Study Limitations

As with any research, there are a number of limitations to be addressed in the current study. Consequently, results must be interpreted with caution. Limitations are listed as follows.

First, treatment and clinical control groups were not randomly selected, but assigned on a first come, first serve basis. Although random assignment is difficult to achieve in this type of intervention study, the method of assignment or of parent choice may have contributed to group differences in severity of social perception symptoms detected by post-hoc analyses. Although both treatment and clinical control groups had

social perception deficits, they differed in makeup according to autistic spectrum diagnosis and severity of social perception deficit at pre-treatment. Post-hoc analysis of scores on a measure used for inclusionary criteria indicates that the treatment group was more impaired in social perception deficits than that control group. These differences were attempted to be controlled statistically through the use of repeated measures ANOVA but the difference is a limitation for this study.

A second limitation of this study is that the lack of an alternative treatment group makes it difficult to draw conclusions about the reasons for change. Without a comparison treatment group, it is unclear whether change occurred due to the specific aspects of this intervention or simply as a result of positive peer interaction. In the future, this study should be repeated with an alternative treatment group receiving more traditional social skills intervention. This procedure was not possible due to a lack of resources. This study, therefore, can be viewed as the research first step in a stage-wise process that should include an alternative treatment group in the future.

Next, any quantitative effects that this intervention may have shown were hindered by the relatively small number of participants per cell. As a result of the small number, power was lower than originally intended. A review of the literature of interventions conducted with children on the autistic spectrum reveals that most studies had low numbers; in fact, the largest number found in a study was 20 per cell. Although the inclusion of qualitative data in this study strengthens quantitative findings, the small number in this study may have limited power and thus prevented stronger quantitative results from being detected. Perhaps with a larger *n*, the three analyses that approached significance would have met significance at the .05 alpha level as predicted.

Another limitation of this study was the choice of quantitative measures. The difference between quantitative and qualitative results suggests that the quantitative outcome measures used (BASC and DANVA2) were not sensitive enough to the changes in this population. In the future, other measures may show these effects,

particularly those that measure empathy and/or theory of mind, since these effects were seen in a number of children.

Weaknesses in treatment integrity, including differences among the size of subgroups, room size, and any variations to the manual that occurred, are also a limitation to the rigor of this study. In many ways, the nature of this project (drama intervention study with children) made departures from treatment integrity inevitable, as leaders ethically adapted to the needs of children in the groups. Also, certain treatment conditions, such as available room size, size of group, and individual group leader styles, could not be controlled due to limited resources and practical limitations. These factors are likely true to life in most clinical settings and although important may be inevitable. Many factors may have affected the study's treatment outcome, including behavior management issues and program organization. Since even small differences could affect treatment outcome, it is suggested that future research in this area have an independent rater of videotapes who can objectively code sessions according to leader adherence to treatment.

Although information gained from parent interviews was positive, these findings are somewhat limited by the fact that only parents of treatment group participants were interviewed. Because interviews from clinical control group parents were not conducted, it is difficult to know whether or not qualitative parent reports reflect actual observation of change. The fact that parent interviews and parent report on the BASC measure are inconsistent puts the qualitative findings in question, although the positive findings in behavioral observations lend them support. It is possible that parents who were interviewed were more likely to report change simply because they were invested in the process or had a desire to please the interviewer. Future studies utilizing qualitative methods should gather interview data from clinical control and alternative treatment groups to control for these factors.

Finally, a limitation in the qualitative analysis of this study was the fact that I had multiple roles in the project as primary researcher, data collector, trainer, and group

leader. Being directly involved in the intervention may have compromised the objectivity of the research. Also, my multiple roles may have made the communication of negative feedback from participants difficult. Though measures were taken to minimize bias, and preserve the validity and reliability of qualitative data, future studies are advised to increase methodological rigor, if possible, by assigning different people to different research roles.

Additional Recommendations for Future Research

Recommendations made for future research on this topic have included the replication of this or similar interventions using an alternative treatment group and/or the use of single-participant design, analysis of identifiable components, expansion of process drama and videotaping in the intervention manual, increase sample size, and further research about the etiology of nonverbal learning disabilities and autistic spectrum disorders. Future research should also take steps to include the collection of follow-up data. Although the current study provides evidence that outcomes generalized over setting (i.e., to home and school) the lack of follow up data in this study prevents us from showing evidence of generalization over time. Since the lack of generalization over time has been a main weakness of previous social skills interventions, it is extremely important that future tests of the Social Competence Intervention programs or similar interventions gather follow up data to determine if this type of intervention truly differs from others in long-term outcome.

As parents have suggested, future studies of the Social Competence Intervention Program or future programs are encouraged to be longer than 16 sessions so that children can be exposed to topics on multiple occasions. In particular, more attention should be placed on training of interpretation of paralanguage and incongruent cues, since less change was seen in this area. Previous researchers have also stated the need for expanded interventions to effect change. Barnhill, Cook, Tebbenkamp and Myles (2002) cite Gresham, Sugai & Homer (2001), who suggest that 30 hours of

social skills training may not be enough to remediate deficits. It occurs to this author that trying to create changes in social competence in a period of eight weeks is somewhat like trying to fill a swimming pool with a spoon. Though progress may slowly be happening, it is very difficult to see any changes without a larger tool.

The results of this study suggest that intervention efficacy may be improved if parents are more involved, whether through regular feedback or a separate parent component to the program. The fact that the parents who formed an informal parent group in fall 2002 reported the largest qualitative results emphasizes the importance of parent participation with this population of children. At the very least, parents stated that they want regular feedback and communication about each session so that they can reinforce the session's objectives at home.

Although the current study contributed to existing social skills intervention literature by specifically targeting children with difficulties in social perception, the population of participants was still very heterogeneous, since different disorders presented with different symptoms. For example, although Asperger's Syndrome and High Functioning Autism are on the autistic spectrum, children with High Functioning Autism were observed to have more self-stimulating behaviors and weaker verbal expression than children with Asperger's Syndrome. Also, this study did not differentiate among subtypes of Attention Deficit Hyperactivity Disorder, and subtypes may have reacted differently to the intervention. Finally, several participants commented that they would have preferred being in group with children closer to their own age. Future studies are encouraged to make more distinctions among diagnoses and ages.

Finally, my own experience of getting to know children through this program has raised my curiosity about their own daily experiences. To date, there has been no formal study focusing on the children's own experiences of having social perception difficulties. The following questions rise for this author: How do children understand their diagnoses or differences? What effects do the labels they carry have on their self-

concept? What do the children themselves believe they need in interventions? It may be that these children hold the most useful answers about what can best help them.

In conclusion, this study contributed to school psychology literature by being one of the first drama-based interventions to address the needs of children with deficits in social perception. By no means were the children's social competence difficulties completely solved; however, this intervention helped participants take positive steps toward social success. Results of this study were encouraging, providing preliminary evidence that post-intervention participants improved in their ability to interact with others and read facial expressions. It is hoped that future researchers replicate these findings, and in doing so, continue to serve and learn from this unique population of children and adolescents.

Appendix A. Rourke's (1995) Model of NVLD

PRIMARY NEUROPSYCHOLOGICAL
ASSETS DEFICITS
Auditory Perception Tactile Perception
Simple Motor Visual Perception
Rote Material Complex Psychomotor
Novel Material

SECONDARY NEUROPSYCHOLOGICAL
Auditory Attention Tactile Attention
Verbal Attention Visual Attention
Exploratory Behavior

TERTIARY NEUROPSYCHOLOGICAL
Auditory memory Tactile Memory
Verbal Memory Visual Memory
Concept Formation
Problem Solving

VERBAL NEUROPSYCHOLOGICAL
Phonology Oral Motor Praxis
Verbal Reception Prosody
Verbal Repetition Phonology-Semantics
Verbal Storage Content
Verbal Associations Pragmatics
Verbal Output Function

ACADEMIC
Graphomotor (Late) Graphomotor (Early)
Word Decoding Reading Comprehension
Spelling Mechanical Arithmetic
Verbatim Memory Mathematics
Science

SOCIOEMOTIONAL/ADAPTIVE
ASSETS DEFICITS
??? Adaptation to Novelty
Social Competence
Emotional Stability
Activity Level

Appendix B. DSM-IV Criteria for Autism and Asperger Syndrome

Diagnostic Criteria for Autistic Disorder

A. At least two from (1), one each from (2), and (3) for a total of six criteria.

(1) Qualitative impairment in social interaction, as manifested by at least two of the following:

(a) Marked impairment in use of multiple nonverbal behaviors such as eye-to-eye, facial expression, body postures, and gestures to regulate social interaction.

(b) Failure to develop peer relationships appropriate to developmental level.

(c) A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g. by a lack of showing, bringing, or pointing out objects of interest.

(d) Lack of social or emotional reciprocity.

(1) Qualitative impairments in communication as manifested by at least one of the following:

(a) Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime.)

(b) In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others.

(c) Stereotyped and repetitive use of language or idiosyncratic language

(d) Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level.

(3) Restricted repetitive and stereotyped patterns of behavior, interests, and activities as manifested by at least one of the following:

(a) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus.

(b) Apparently inflexible adherence to specific, nonfunctional routines or rituals.

(c) Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)

(d) Persistent preoccupation with parts of objects.

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.

Diagnostic Criteria for Asperger Syndrome

A. Qualitative impairment in social interaction, as manifested by at least two of the following:

(1) Marked impairment in use of multiple nonverbal behaviors such as eye-to-eye, facial expression, body postures, and gestures to regulate social interaction.

(2) Failure to develop peer relationships appropriate to developmental level.

(3) A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g. by a lack of showing, bringing, or pointing out objects of interest.

(4) Lack of social or emotional reciprocity.

B. Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

(1) Encompassing preoccupation with one or more stereotyped and restricted patters of interest that is abnormal either in intensity or focus.

(2) Apparently inflexible adherence to specific, nonfunctional routines or rituals

(3) Stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole-body movements)

(4) Persistent preoccupation with parts of objects

C. The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.
There is no clinically significant general delay in language (e.g. single words used by age 2 years, communicative phrases used b age 3 years).

D. There is no clinically significant delaying cognitive development or in the development of age-appropriate self help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.E. Criteria are not met for another specific pervasive Developmental Disorder or Schizophrenia

Appendix C. Behavioral Observation data form and guidelines

	Positive	Negative	Solitary	Neutral
1				
3				
5				
7				
9				
11				
13				
15				
17				
19				
21				
23				
25				
27				
29				
31				

	Positive	Negative	Solitary	Neutral
2				
4				
6				
8				
10				
12				
14				
16				
18				
20				
22				
24				
26				
28				
30				
32				

33				
35				
37				
39				

34				
36				
38				
40				

Name:

Date:

Setting:

School:

Observer:

Additional Behavioral Observation Guidelines

1) If the child you are observing is either teasing a peer or being teased by another child, base your rating upon the reaction of the person being teased. If the person being teased looks upset or bothered by the teasing, rate it as a negative interaction. If he/she is not bothered by it, and it appears that the teasing is more of an age-appropriate social interaction, rate the interaction as positive. Use common sense here. If the teasing appears to be mean rather than friendly, rate the interaction as negative.

2) If the child you are observing is interacting well with a friend but both children are teasing a third party and the third party is upset, rate the interaction as negative. This is because we are looking at overall social competence. In the long run, hurtful teasing is not a socially competent action.

3) If the child you are observing is with a group of children and playing cooperatively but appears to be left behind somewhat, rate this as a positive interaction, since the child is still interacting positively with peers.

4) If the child is sting with or near a group (i.e., at lunch) but is disengaged from the group and not interacting, rate this as a solitary behavior. The distinction between disengaged and quiet, but engaged, behavior may be difficult to make, but use your best judgment. For example, if the child you are observing and others do not speak or make eye contact at all, count this as solitary behavior.

5) If the child you are observing speaks and other children respond to this comment with glances at each other as if to say, “What a weirdo”, or respond with another negative facial expression, generally count this as a negative interaction. However, use judgment based on context. For example, if this interaction seems to facilitate social acceptance among the kids, rate it as positive; if it distances them socially, rate it as negative.

Appendix D. UT IRB forms

IRB#_01-04-22
Informed Consent to Participate in Research

The University of Texas at Austin

You are being asked to participate in a research study. This form provides you with information about the study. The Principal Investigator (the person in charge of this research) or his/her representative will also describe this study to you and answer all of your questions. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part. Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.

Title of Research Study: Assessment of social competence in children with developmental disorders

Principal Investigator(s) Professor , Ph.D., Department of Educational Psychology, School Psychology Program, University of Texas at Austin. (512) 471-0274

Funding source: None

What is the purpose of this study? We are trying to learn the best ways to evaluate children suspected of having difficulties with social skill development as well as those who do not have such problems. More importantly, however, we are looking for better and more effective ways for parents and teachers to help students with social skill problems. We are asking parents of children who do not have these problems to participate in this study to determine how these children differ from children who do have social competence difficulties. We are also asking parents of children with such difficulties to participate in our study. Your child will be one of several hundred asked to participate in the project over several years.

What will be done if you take part in this research study? First, we will conduct a comprehensive assessment to determine whether your child has social skills difficulties or not. Your child will be asked to define words, solve problems, read and complete

mathematics problems, complete block designs, write and draw, complete puzzles and answer questions about his/her feelings. Your child will also be asked to identify the emotions shown on computerized program. This assessment will take place in the School Psychology assessment rooms at the University of Texas or at your child's school. We will also ask you to have your child's teacher complete two rating scales that you will be provided. Parents will also be asked to complete an interview as well as behavioral rating scales and a developmental history.

Second, for those children with social difficulties, we will provide students with interventions designed to improve their academic performance and their social skills. As with the assessment, all interventions are extensions of techniques offered in schools. Children participating in the intervention will also be asked to complete a measure of social perception before and after the intervention to help determine effects of the intervention. Children participating in the intervention will also be observed by graduate students in two different settings (P.E. and lunch/recess) before and after the intervention to measure changes in their social skills. In addition, parents and children of those who participate in the intervention will be interviewed after the intervention ends to determine their evaluation of the procedures. These interviews will be audiotaped but the tape will be erased after the information is coded.

What are the possible discomforts and risks? There are few known risks to this study. Your child may become fatigued from completing the tests. To avoid this difficulty, frequent breaks will be provided. Attendance in the intervention may bring up feelings that are uncomfortable. Additional support will be provided for your child and you will be fully informed about the techniques utilized as well as being provided with an outline of the activities. Treatment for serious psychological difficulties will not be provided but additional support can be found through the Austin Child Guidance Clinic at (512) 451-2242.

If you wish to discuss the information above or any other risks you may experience, you may ask questions now or call the Principal Investigator listed on the front page of this form.

What are the possible benefits to you or to others? You will receive a brief summary of the test results that may assist you in your child's school. However, this assessment is not meant to supplant comprehensive neuropsychological tests or take the place of school evaluations. Your child may benefit from the intervention but at this point in time the benefit is not established.

If you choose to take part in this study, will it cost you anything? No

Will you receive compensation for your participation in this study? No

What if you are injured because of the study? There are no known physical risks. No treatment will be provided for research related injury and no payment can be provided in the event of a medical problem.

If you do not want to take part in this study, what other options are available to you?

Participation in this study is entirely voluntary. You are free to refuse to be in the study, and your refusal will not influence current or future relationships with The University of Texas at Austin.

How can you withdraw from this research study and who should I call if I have questions?

If you wish to stop your participation in this research study for any reason, you should contact: , Ph.D. (512) 471-0274. You are free to withdraw your consent and stop participation in this research study at any time without penalty or loss of benefits for which you may be entitled. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

In addition, if you have questions about your rights as a research participant, please contact Clarke A. Burnham, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, 512/232-4383.

How will your privacy and the confidentiality of your research records be protected?

Authorized persons from The University of Texas at Austin and the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. If the research project is Otherwise, your research records will not be released without your consent unless required by law or a court order.

If the results of this research are published or presented at scientific meetings, your identity will not be disclosed.
The audio recordings made during the interview phase of this study will be (a) coded so that no personally identifying information is visible on them; (b) will be kept in a secure place (e.g., a locked file cabinet in the investigator's office); (c) will be heard or viewed

only for research purposes by the investigator and his or her associates; and (d) will be erased after they are transcribed or coded.

Will the researchers benefit from your participation in this *study*? No
Signatures:

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

_____

Signature and printed name of person obtaining consent **Date**

You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this Form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

_____

Printed Name of Subject **Date**

_____

Signature of Subject **Date**

_____

Signature of Principal Investigator **Date**

B. Assent form for child between 13 and 17 years of age

"I have read the description of the study titled (give title) that is printed above, and I understand what the procedures are and what will happen to me in the study. I

have received permission from my parent(s) to participate in the study, and I agree to participate in it. I know that I can quit the study at any time."

_____ _____

Signature of Minor Date

CONSENT FORM

Assessment of Social Competence in Children with Developmental Disorders

Your child/adolescent is invited to participate in a study of children and adolescent's ability to understand social interactions. My name is , Ph.D. and I am a professor at The University of Texas at Austin, Department of Educational Psychology. I am asking for permission to include your child/adolescent in this study because we are studying children's ability to understand social relationships. We are working with children who have difficulty with understanding as well as those who do not . I expect to have 300 participants in the study.

If you allow your child to participate, , Ph.D. will discuss the types of tasks your child and you will complete. These tasks include answering questions, completing block designs, drawing, and completing a computerized measure. In addition, your child and you will complete a behavioral rating scale. Completion of the tasks will take place at the Department of Educational Psychology at the University of Texas at Austin at your convenience. The assessment and interventions will be completed by doctoral students in school psychology under the supervision of Margaret Semrud-Clikeman, principal investigator.

Any information that is obtained in connection with this study and that can be identified with your child's name will remain confidential and will be disclosed only with your permission. His or her responses will not be linked to his or her name or your name in any written or verbal report of this research project. No information will be released without written permission from you.

Your decision to allow your child/adolescent to participate will not affect your or his or her present or future relationship with The University of Texas at Austin. If you have any questions about the study, please ask me. If you have any questions later, call me at (512) 471-0274. If you have any questions or concerns about your child/adolescent's participation in this study, call Professor Clarke Burnham, Chair of the University of Texas at Austin Institutional Review Board for the Protection of Human Research Participants at 232-4383.

You may keep the copy of this consent form.

You are making a decision about allowing your child/adolescent to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. If you later decide that you wish to withdraw your permission for your child/adolescent to participate in the study, simply tell me. You may discontinue his or her participation at any time.

_____
Printed Name of your child

_____ _____
Signature of Parent(s) or Legal Guardian Date

_____ _____
Signature of Investigator Date

C. <u>Assent form for child between the ages of 7 and 12.</u>

Assessment of Social Competence in Children with Developmental Disorders

I agree to be in a study about how children understand emotions and friendships. This study was explained to my parents and they said that I could be in it. The only people who will know about what I say and do in the study will be the people in charge of the study and my parents.

In the study I will be asked questions about how I solve problems and answer questions. I will also work with block designs, draw, and work on a computer. I will also be asked how I feel about my myself and my friends.

Writing my name on this page means that the page was read (by me/to me) and that I agree to be in the study. I know what will happen to me. If I decide to quit the study, all I have to do is tell the person in charge.

_____ _____
Child's Signature Date

_____ _____

Videotape consent form

I/We _____ authorize the University of
(please print names)
Texas Department of School Psychology to videotape Social Competence Intervention Program sessions to assist with group leader training and to facilitate research about social skills interventions. I voluntarily authorize the use of the videotape for:

a) review by research supervisor and staff yes/ no
b) education of other mental health professionals at professional workshops and conferences yes/no

I grant that this consent is a voluntary contribution in the interest of education and research and I understand that there is no financial compensation to me for the use of such tape. I grant that the University of Texas Department of School Psychology reserves the right to edit the tape and that all my questions pertaining to this consent have been answered to my satisfaction.

I CERTIFY THAT I HAVE READ AND FULLY UNDERSTAND THE ABOVE CONSENT FOR VIDEOTAPE RECORDING AND DO SO CONSENT.

Date and Time: _____

Parent Signature: _____

Child Signature: _____

Witness: _____

Audiotape consent form

I/We _____ authorize the University of
(please print names)
Texas Department of School Psychology to audiotape child and parent interviews describing participants' experience with the Social Competence Intervention Program. These tapes will be used as dissertation data to facilitate research about social skills interventions. I voluntarily authorize the use of the audiotape for:

a) review by research supervisor and staff yes/ no

I grant that this consent is a voluntary contribution in the interest of education and research and I understand that there is no financial compensation to me for the use of such tape. I grant that all my questions pertaining to this consent have been answered to my satisfaction.

I CERTIFY THAT I HAVE READ AND FULLY UNDERSTAND THE ABOVE CONSENT FOR VIDEOTAPE RECORDING AND DO SO CONSENT.

Date and Time: _____

Parent Signature: _____

Child Signature: _____

Witness: _____

Appendix E. Interview questions

Questions for Parents:

1) Before we begin talking about the intervention, could you briefly review the original concerns you had which brought you to our program?

2) Have you noticed any changes in your child's behavior or mood since he/she participated in the program? If so, what are they? Can you give me a specific example?

3) When did you first notice these changes? When does this behavior usually occur? Are there any specific circumstances during which you notice these behaviors?

4) Was your child's behavior or mood different on days of the intervention?

5) Has your child had any medication changes or have any significant life events occurred that might account for these changes in behavior or mood?

6) Overall, to what degree were your original concerns addressed?

7) Was there any aspect of the intervention that you believe was particularly helpful to your child?

8) What was the experience of meeting other parents like for you?

9) How could we improve the intervention?

10) Do you have any feedback for us about the intervention's structure or organization?

11) Is there anything else you would like to tell me about your experience with the Social Competence Intervention Program?

Questions for Child Participants:

1) Why did you think you were coming to group?

2) Did you like coming to group? Why or why not?

3) Did you think that the group was going to be like it was, or did you think it would be different? If so, what did you think it would be like?

4) What specific things did you like about the group?

5) What didn't you like about the group?

6) Did you learn anything in group? What did you learn?

7) Is anything you learned in group helping you now at school with other kids? How?

8) How can we make the group better?

9) Is there anything else you want to tell me about being in group?

Appendix F. Social Competence Intervention Program: Manual Outline

Session 1: Establishing Group Identity

Objectives:

- *Introduce group members to each other.*
- *Establish group identity through discussion and cooperative activities.*
- *Establish the group as a place where it is safe to share feelings, express personalities and ask questions.*
- *Create group guidelines.*
- *Normalize difficult feelings people might experience when meeting new people through discussion about making friends.*
- *Begin expressing thoughts and feelings about experience in journal form through home "challenge" assignments.*

Activities:

- *Introduction and Welcome*
- *Warm-up: The Name Game*
- *People Search*
- *Establish a group name and guidelines*
- *Discussion: What is easy or difficult about getting to know new people? How might you let others know that you want to be friends?*
- *"Electricity"*
- *Wrap-up: Session review and distribution of journals where children will complete home challenges.*

Session 2: Focusing Attention

Objectives:

- *Discuss how focusing attention is an important part of getting along with others.*
- *Practice focusing attention and self-control, both visual and auditory.*
- *Begin to give and take cues with a partner through mirror activities.*
- *Increase trust and cohesion among group members.*

Activities:

- *Warm-up: Rubber band exercise (younger group) or "Last Detail" (older group).*
- *Review of Home Challenge*

- *Discussion: Part of getting along is paying close attention to others? Why is this so? What does this mean?*
- *The Mirror*
- *Sending Hearing Out*
- *YOUNGER GROUP: The Circle Game; OLDER GROUP: Follow the Follower*
- *Freeze*
- *Who Started the Motion?*
- *Home Challenge*

Session 3: Emotional Knowledge

Objectives:
- *Discuss feelings and how they affect our lives.*
- *Review vocabulary and meanings of different feelings*
- *Begin to engage in cooperative physical activity*
- *Stretch imagination*

Activities:
- *Warm-up: Name Game Review; Stretch and Shakeout, People to People*
- *Review of Home Challenge*
- *Discussion: How do we show our feelings? What affects our feelings? Where in our body do we feel them?*
- *Emotion collage/role on Wall*
- *"Moonwalk"*
- *Knots.*
- *Home challenge*

Session 4: Facial Expressions and Body Language

Objectives:
- *Discuss how we know what others are feeling by giving and taking cues in facial expression and body language, and how this helps us to get along with others.*
- *Experience making a variety of facial expressions and seeing them mirrored.*
- *Move with different emotions and receive feedback about how these were expressed.*
- *Practice interpreting others emotions through their movements and facial cues.*

Activities:
- *Warm-up: Change It*
- *Review of Home Challenge*
- *Discussion: How do we know what someone is feeling? Facial and body cues are one way we can tell. When we communicate, we are giving and taking cues.*

- *Younger: Rubber band and rubber face exercises*
- *Moving with Emotion*
- *Feeling Cards*
- *Older: Group emotion sculpture*
- *Doing something two ways*
- *Camera*
- *Home challenge*

Session 5: Vocal Cues

Objectives:

- *Experiment with using vocal expression in different ways in front of peers.*
- *Discuss how we also know how people are feeling by their voice tone.*
- *Practice saying the same sentence with a variety of emotions.*

Activities:

- *Warm-up: Sound circle*
- *Review of Home Challenge*
- *Discussion: What is it about a person's voice that tells us how they are feeling?*
- *Say it with feeling*
- *Stress it*
- *Home Challenge*

Session 6: Putting Cues Together

Objectives:

- *Explore spatial relationships and perception within cooperative physical activity.*
- *Discuss what communicating successfully means in real life—figuring out the face, voice and body language at the same time, often with different intensities.*
- *Express and interpret visual and auditory cues together in cooperative activities*
- *Express emotions with different intensities.*

Activities:

- *Warm-up: "The Machine"*
- *Review of Home Challenge*
- *Discussion: Putting it all together. Telling how people are feeling by integrating*
- *Voice,, face and body cues*
- *Emotional hot potato*
- *Gibberish*
- *Gift giving*
- *Home Challenge*

Session 7: When Cues Don't Match

Objectives:

- *Discuss situations in which visual and auditory cues don't match.*
- *Develop strategies to help interpret these situations.*
- *Improvise and role-play ambiguous situations.*

Activities:

- *Warm-up: Sound Shadows*
- *Review of Home Challenge*
- *Discussion: Sometimes what someone says does not match facial expression or body language. What are some strategies to use when we are not sure what someone means?*
- *Movie clips: Play video of movie clips and take turns identifying when cues aren't matching. How do you know? What does the person want to show? What do you think the person is really thinking and feeling?*
- *Improvisations*
- *Home Challenge*

Session 8: When Cues Don't Match (continued)

Objectives:

- *Establish a drama "contract" among group members (guidelines for group improvisation).*
- *Practice accepting and building on other's ideas in preparation for role drama activities.*
- *Cooperate through group discussion to solve problem*
- *Practice interpretation of another's intentions when nonverbal cues don't match through process drama*

Activities:

- *Warm-up: Help!*
- *Review of Home Challenge and last session*
- *"Yes, and…" game*
- *Choice of Process dramas: "Scotland Yard and the Stolen Cake" or "Miss Gibber and the Lost Dog" or "Theft at the Computer Store"*
  - *Choosing roles*
  - *Interviewing of Suspects*
  - *Examination of Evidence*
  - *Discussion and conclusion*

Session 9: Taking Another's Point of View

Objectives:

- *Discuss what it means to think/see from another person's point of view*
- *Express personal point of view about several opinions in group setting*
- *Allow others to express different opinions*
- *Experience a situation from different points of view*

Activities:

- *Warm-up: Slow Motion Freeze Tag*
- *Review of Home Challenge*
- *Discussion: What does point of view mean? Discuss examples of different points of view. Why might it be important to respect other people's points of view?*
- *Vote with your feet*
- *Talk Show process drama "Standing in your Shoes"*
- *Home Challenge*

Session 10: Practicing Skills in Context

Objectives:

- *Introduce new process drama*
- *Establish dramatic roles and purpose*
- *Engage imagination in pantomiming of role activities*
- *Work together in groups to create artifacts/tools for drama*
- *Continue to practice constructive discussion with others*

Activities:

- *Warm-up: A What?*
- *Review of Home challenge*
- *Introduce Process drama: "Space Station" or "Ad Agency"*
  - *Introduce Mission with an artifact*
  - *Group discussion and choosing of roles*
  - *Spotlighting of roles*
  - *Creating signs/tools for mission in partners*
  - *Group discussion about mission, plans for next session*

Session 11: Practicing Skills in Context (continued)

Objectives:

- *Analyze various types of social interactions in order to process how to interpret them*
- *Apply newly learned concepts of how to interpret social cues by looking at face, body gestures and voice tone*
- *Film interactions for mission*

Activities:

- *Warm-up: Mirror*
- *Continuation of Process Drama*
  - *Review of mission*
  - *Role-play various types of social interaction within the context of process drama*
  - *Film partner and group interactions for mission*

Session 12: Practicing Skills in Context (continued)

Objectives:

- *View self on film; determine if intent matched emotional expression*
- *Give and take constructive feedback from other group members*
- *Use imagination to create alternate outcomes for process drama*

Activities:

- *Warm-up: Steal the Movement*
- *Process drama*
  - *Watch and discuss video recordings*
  - *Improvise end of mission*
  - *Group sculptures: Alternate endings*
- *Home Challenge*

Session 13: Initiating Conversation

Objectives:

- *Normalize feelings of shyness or anxiety about initiating conversation*
- *Develop self-talk to help overcome anxiety about initiating conversation*
- *Discuss successful and not-so-successful ways to start conversation*
- *Practice ways to initiate conversation*

Activities:

- *Warm-up: "On the Spot" (um game)*
- *Discussion: Sometimes it is hard starting conversations with people. Who has had this experience? What are some things you could say to start conversation? How do other people let you know that they want to talk with you?*
- *You're the Salesman*
- *Bus Stop Improvisations*
- *Home Challenge*

Session 14: Dealing with Teasing

Objectives:

- *Discuss being teased or left out. Encourage sharing of experiences*
- *Normalize feelings and fears about being teased*
- *Reframe our interpretations about why this might happen or have happened in the past and what it means*
- *Brainstorm ideas about what to do in these situations*
- *Role-play these strategies through "tag" improvisations*

Activities:

- *Warm-up: Moving Pictures*
- *Review of Home Challenge*
- *Discussion: Everyone has been teased sometimes. What are some things we can do if this ever happens?*
- *"Tag" freeze improvisations*
- *Home Challenge*

Session 15: Review of Topics

Objectives:

- *Review skills learned*
- *Process feelings about ending group*
- *Express memorable moments*
- *Make positive predictions about future social interactions*

Activities:

- *Warm-up: Group choice*
- *Review of Home Challenge*
- *Discussion: Process feelings about group ending soon*
- *Interviews from the Future*

- *Compliments on the Back*
- *Choose activity to do with parents and practice*

Session 16: Goodbye and Closure

Objectives:
- *Discuss intervention experience*
- *Give positive feedback to peers*
- *Group members teach parents a favorite activity*
- *Celebrate time spent together*

Activities:
- *Parents invited to play a game chosen in the previous session*
- *Discussion: What have we learned about ourselves and about each other?*
- *Memorable moments partner sculptures*
- *Goodbye party*

Appendix G. Outline of group leader training

1) Leading Groups

Intro to skills groups
Roles of leaders—our goals
Issues involved in Co-leading groups
General guidelines when working with groups of kids
Praise incremental improvements
Never leave children alone (even for an instant)
Liability issues
Creating a safe place emotionally—how to reinforce this
Confidentiality

2) Review of behavior management strategies

Cooperative discipline—the four goals of misbehavior & strategies for each
Other behavior management strategies (e.g., use of the "talking stick" for taking turns when talking
Possible reinforcement strategies if needed
Issues specific to nonverbal learning disabilities and autistic spectrum disorders
Troubleshooting

3) Intro to creative drama and process drama

Creative drama
Process drama
Drama Leader qualities and strategies (side coaching, risk taking, participation)

4) Review of new manual

Intervention model of social perception
Structure of each session
Session by session review
Examples of activities

5) Practical matters

Assignment of leaders to groups
Assignment of responsibilities to group leaders (materials, video camera, etc.)
Supervision/Treatment integrity
Process notes/journaling

Appendix H

Changes noted by parents after intervention

Participant	Age	Gender	Diagnosis 1	Diagnosis 2	Changes noted
1*	8-0	Female	PDD	ADHD, Depression	• Does better socially at school • able to focus and listen better
2	8-1	Male	HFA	ADHD	• face is more expressive • interacts more with friend he made in group • initiated play with other boys
3	8-4	Female	HFA	ADHD	• shows more empathy and affection for sister • more aware of her own feelings • able to express feelings better
4	8-6	Male	HFA	ADHD	*No changes observed*
5	8-7	Male	Asperger's		• teachers report improvement in social skills at school; he is playing with others better • has at least one friend now out of group; has been playing more with other kids • able to verbalize feelings better • shows more empathy to sister's needs; can verbalize where she's coming from • affect is more congruent with content of conversation • began engaging in pretend play • realizes when being bullied
6	8-9	Male	ADHD		• expresses self better with others • has a friend now out of group
7*	8-9	Male	Asperger's		• seems calmer, not as uptight • entertains brother more
8	8-10	Female	NVLD	ADHD	• plays with others now • says "I'm not afraid anymore" and "I'm so proud of myself" • greets others without prompting • tries to be expressive with

					face
9	10-2	Male	ADHD	LD	*No changes observed*
10	10-5	Male	Asperger's	ADHD	• is more interested in seeking friends and being with others • mom notes that intervention was the first experience of enjoying pretend play
11	10-7	Male	ADHD		• has made 2 friends in school • volunteers more in class
12	11-5	Male	PDD		• reaches out more to kids in neighborhood; desires friends • some increased eye contact
13	11-5	Male	Asperger's	ADHD	• thinks more about what others are feeling • showed compassion for a friend • thinks before speaking, shows more self-control • apologized to friend without prompting after yelling
14**	12-3	Male	PDD	ADHD	
15	12-5	Male	NVLD	ADHD	• face is more animated • makes more of an effort to communicate with others; doing a give-and-take in communication • greets others without prompting • shows more self-control (i.e., does not 'unload' on parents after school anymore); more aware of how he affects others • being more social, not staying in room as much
16	12-6	Male	ADHD	LD, Depression	*No changes observed*
17	13-0	Male	Asperger's	ADHD	*No changes observed*
18**	13.9	Male	ADHD	LD	

Note. HFA =High Functioning Autism, ADHD =Attention Deficit Hyperactivity Disorder, PDD = Pervasive Developmental Disorder, NVLD = Nonverbal Learning Disability
*changes not attributed to intervention
* interview not available

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VITA

Laura Ann Guli was born on May 12, 1969 in Brooklyn, NY to Salvatore and Diana Guli. She obtained a B.A. in English Literature from the University of Virginia in 1991, after which she spent one year teaching abroad in Caracas, Venezuela and one summer doing volunteer work in rural France. In 1997, she obtained a second B.A. in Psychology from George Mason University. While obtaining her second B.A., Laura taught art and theatre arts in English, French and Spanish to elementary school students full time at Rock Creek International School in Washington, D.C. She began the doctoral program at the University of Texas at Austin in School Psychology in 1998 and earned a Masters degree in 2001. For several semesters she worked several semesters as a supervisor of student teachers for the Department of Curriculum and Instruction. In 2002, Laura was awarded a University Continuing Fellowship for excellence in achievements in academics and research. She was elected as graduate school committee representative for the Department of Educational Psychology and served as a student editor for *School Psychology Quarterly* during the 2002-2003 academic year. During her graduate training, Laura was author of several publications and presented at several national conferences. Her academic interests include the use of creative arts as psychological intervention, the etiology of affective disorders in children, and parent consultation. In 2004, Laura completed her doctoral requirements with a predoctoral internship at Salesmanship Club Youth and Family Centers in Dallas, TX. In addition to child psychology, Laura's passions include creative writing and travel.

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